

Network

Railways of Australia
Quarterly

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January, February, March 1988

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Queensland's electrification
ahead of schedule (page 10)

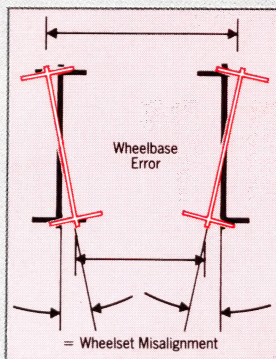
Victoria's light rail
a world leader (page 24)

The golden age of the
Twelve Wheelers (page 41)

On the Gulflander, one of
Australian rail's pioneers (page 52)

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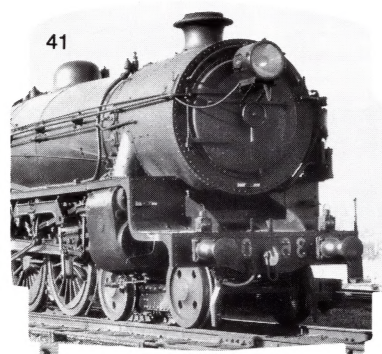
Queensland Railways



The Met



V/Line



Railway History



Queensland Railways

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Front Cover:

*The new Australind crosses the Collie River at
Brunswick Junction, 26km north of Bunbury.*

*Our only requirement of writers and
personalities who contribute to Network
is that they be informative or entertaining
and that their subject has relevance to
the wide interests of railwaymen today.
Naturally, there will be occasions when
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A year for looking back and steaming ahead

This year, 1988, is an occasion for reflection and contemplation. It should also be a very happy year, as we celebrate 200 years of European settlement in Australia.

Consider, for a moment, the contribution railways have made to our progress during that time. Fewer than 30 years after the first public railway opened in England, half a world and at least four months' sea voyage away, the first steam-hauled, locomotive-operated railway connected the city of Melbourne with its port at Sandridge. The pioneer line's function was that of many of Australia's early railways: it connected an inland centre with its port; and the growth pattern of Australia's railways reflects the continuation of that task. Rail land links between Australia's adjacent colonies came more slowly. The **greatest** developments took place after World War II with the linking of all mainland State capital cities by standard gauge railway.

Railways of Australia is celebrating its contribution to Australia's growth with the operation of our Bicentennial Steam Train between those mainland State capitals during this year. Bookings are already coming in at a very pleasing rate for all tours, and I am glad to know that many Australians will have the opportunity of seeing, and riding behind, what has been described as the epitome of Australian steam passenger locomotive design and construction. It will be an historic sight and sound, refreshing our own memories and capturing the imagination of the younger generation. The train's operation should also spur contemplation of Australia's future. And there are signs that things will happen in 1988.

Within Railways of Australia, we shall be concentrating on serving our customers better. The National Freight Group, our marketing co-ordination unit, is strengthening its contact with customers through the formation of Business Management Groups. Each is devoted to a particular area of major importance: intermodal, iron and steel, paper, freight forwarders, automotive. In each group, representatives from all Systems determine common policies on handling customers' needs more efficiently through keeping close to the market.

On the passenger side, our Interstate Passenger Committee is meeting regularly with the objective of updating our long-distance passenger services. And there are other possibilities that may significantly affect our future. Will the Very Fast Train project go further? Will the Bureau of Transport Economics, now investigating the possibility of linking Westrail with Australian National, recommend this step? Will governments listen to and act upon the recommendations of the Royal Commission into the transport of grain in Australia?

From all viewpoints, 1988 will be an exciting year.

Michael Schrader

**M. C. G. SCHRADER
EXECUTIVE DIRECTOR**



M. C. G. Schrader

Midland switches on to computerised engineering

Westrail's Midland Workshops have officially put into service what is said to be the most advanced engineering planning system in Australia.

The system was established by Westrail in collaboration with Cincom, an international computer software company. It assists the workshops' 1500 staff in production and repair work valued at \$40 million a year. Gavan Troy, WA's Transport Minister, said Production Control was an important investment for Westrail. The Midland Workshops are the largest engineering works in WA. The work is highly diversified because it involves both repair and manufacturing. Most large engineering works only manufacture, so other production planning systems were designed for use in factories.

One of those systems was Cincom's. At Midland, Westrail and Cincom staff redesigned it for local conditions. Installation of a mainframe computer began in late 1986, and the first of 120 computer terminals went into use on the shop floor in March 1987.

Mr Troy said that the benefits of the planning system would be particularly noticeable at the workbench. Now everything needed for a job would be available on time. Even the supply of materials from the stores would be planned by the system.

"The services that the Workshops provide for other sectors of the organisation will be more efficiently and cheaply performed," Mr Troy said. "For instance, newly built or repaired wagons will be available for traffic operations sooner and with greater reliability."

He said Production Control was the latest in a series of important investments at the Workshops that had made them more competitive.

Westrail is building on the success of Production Control by partnering Cincom in the marketing of the system to other organisations.

Going under its commercial name of Control:Workshops, the system is intended for use in engineering works

with complex production lines involving repair and manufacture. These are typically airline and defence force workshops, steelworks, oil refineries and chemical plants, as well as railway workshops.



Wheelshop Foreman Milton Gunnell at his computer terminal in the Midland Workshops. The Production Control computer system means everything needed for a job will be available on time.



State Rail's XPT at speed: the high-speed inter-city train has taken Australia into the list of countries scheduling trains at start-to-stop averages of at least 120km/h.

XPT takes Australia into the world league

Australia's inter-city XPT trains in New South Wales, built under licence to the basic British diesel-powered high-speed train (HST) design, have taken Australia into the world league of fastest scheduled passenger rail services.

In the 1987 world speed survey published in *Railway Gazette International* magazine, several newcomers such as Australia, Ireland and Spain make their entry into the list of countries scheduling trains at a start-to-stop average of 120km/h or over.

The magazine reports: "Australia's entry is primarily due to the XPTs in New South Wales, built under licence to the basic British HST design, one of which broke the Australian rail speed

record in September 1981 when it reached 183km/h."

The survey says the next few years should see more newcomers to the high-speed club, although the need for new track and signalling might delay the achievement of an accelerated service with new rolling stock. It continues: "A good example of this is the 160km/h XPT, which did not allow Australia to reach the 120km/h threshold until CTC signalling had replaced the previous manual token exchange, nearly five years after the XPTs entered service."

France and Japan still lead the rail speed league, but Britain has beaten off a challenge from West Germany to retain third place.

The survey says that despite the disappointment of the cancellation of the 250km/h Advanced Passenger Train (APT) project several years ago, British Rail is notching up some "remarkable" speeds with its HSTs. Notable runs include a re-launch special run by the Tees Tyne Pullman from Newcastle in north-east England to London. It averaged 185.7km/h, which is faster than Japan's first Shinkansen. Another achievement was the record-breaking sprint of 232.9km/h over a measured mile on what the *Railway Gazette* describes as the "racetrack" section of line between York and Darlington in northern England.



The clip



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Robot trains speed Britain's mail

A British postman wheels a Royal Mail trolley from the redesigned MailRail robot shuttle train that operates without a driver, guard, or passengers on the British Post Office's own underground railway linking Paddington and Liverpool Street railway termini with seven major sorting offices in London. The world's only underground mail transport system, soon to be computer controlled, runs for 22 hours a day. It carries 40 000 bags of mail (eight million letters) every day, covering the 10.4km far below the streets of London in just 13 minutes — much faster than van, motorcycle, taxi or tube train. The updated service was inaugurated by the Post Office's new chairman, Sir Bryan Nicholson, to mark the 60th anniversary of the railway.

State Rail plans to save \$30m

State Rail this year plans to save the NSW Government \$30 million and is already halfway to its target, according to Chief Executive Pat Johnson. State Rail has a target of \$300 million for this year's revenue supplement. "If State Rail comes in on this self-imposed target, it will be a \$30 million drop in the NSW Government's \$330 million revenue supplement allocation for this financial year," Mr Johnson says. "This is continuing the decline in State Rail's demand on the public purse, from \$448 million in 1982/83 down to the projected \$300 million in the current year, a reduction of around 50 per cent in real terms." After 16 weeks of the financial year, State Rail is halfway towards its target

for the year — \$15 million better than budget.

"Burgeoning passenger figures coupled with stringent financial management combined to put State Rail in this pleasing financial position," Mr Johnson says.

"The biggest single item is a \$7 million boost in passenger revenue above our expectations.

"Despite a general strike in the coal industry during the first quarter of the year, State Rail's freight revenue is now back on line with budget. Expenditure is \$8 million below budget, which reflects improved efficiencies across the board."





ELECTRIC ARRIVALS



Emerald railway station, opened in 1900, is the scene for the commissioning ceremony of stage three of Queensland's main line electrification.



Passengers leaving the inaugural run of the latest link in the electrification of the Brisbane Citytrain network — the 4.5km of line between Wellington Point and Cleveland.

Left: Sunrise road bridge spans the new electrified rail route on the 10km Eumundi deviation, north of Nambour.



Electric network

Queensland's main line electrification project is a step closer to completion with the opening of stage three of the \$1065 million project.

Queensland's main line electrification project is a step closer to completion with the opening by the Minister for Transport, Don Lane, of stage three of the \$1065 million project.

Now attention is focused on stage four, the final link from Caboolture to Gladstone, the second section of which is due to open in mid-1988, well ahead of schedule.

Stage three, the 72km link between Emerald and Tolmies in Central Queensland, will carry bigger grain tonnages and ensure that coal traffic on the central line is not slowed by diesel trains.

The Midlander passenger train will sometimes be hauled by electric traction between Rockhampton and Emerald but freight traffic, including coal and grain trains, will have priority.

The diesel Midlander services will, however, operate to faster schedules from February, 1988, following the introduction of centralised traffic

control between Blackwater and Emerald.

The first section of stage three, between Blair Athol and Clermont, opened in July 1986. This 21km connection is part of a ring now connecting Mackay with Clermont, Emerald, Blackwater, Rockhampton, and Gladstone.

Electrification between Emerald and Tolmies has raised the average speed of grain trains, especially between Rockhampton and Tolmies, a heavily used coal section. Electric grain trains will minimise delays to coal haulage. With VA class grain wagons available on the central line, electric-hauled grain trains will travel from Nogoa to Gladstone at up to 80km/h due to the much greater pulling power of electric locomotives on grades.

The commissioning of stage three marks the completion of main line electrification in Central Queensland. Almost 1570km of single track have been electrified at a cost of \$700 million since the state government launched the huge scheme in August 1983.

The first part of stage one, Gladstone/Rockhampton, was

commissioned in September, 1986. Stage 2, linking the Goonyella mines system with Hay Point and Dalrymple Bay, was opened in May 1987. Regular shipments of coal in electric trains from the Blackwater area to Gladstone also began in May 1987.

New electric locomotives are being phased in until late 1989, when they will haul more than one million tonnes of coal a week to the export ports of Dalrymple, Hay Point, Clinton and Gladstone.

Final stage

Stage four, Caboolture to Gladstone will be opened in two sections. The first part, Caboolture to Nambour is scheduled for April 1988, and Nambour to Gladstone is due to open in mid-1989, several months ahead of schedule.

This will provide the final link in the Queensland electric rail chain: Brisbane - Gladstone - Rockhampton - Emerald - Gregory - the Goonyella mines system (including the branch south to Blair Athol) - Hay Point/Dalrymple Bay, near Mackay.

racing to finish

At that point, more than 2500km of the Queensland Railway system will have been electrified.

It is expected that the Brisbane - Rockhampton intercity electric passenger train will be running by mid-1988.

Track upgrading, including four major deviations, and the use of electric traction between Brisbane and Rockhampton will greatly reduce both passenger and freight times. The Spirit of Capricorn will run on a nine-hour timetable, a saving of up to five hours on the diesel Capricornian schedules. Top speed of the new electric train will be 120km/h.

Express freight trains now average 14-16 hours between Brisbane and Rockhampton. Electrification will cut this to 12 hours. In addition, single electric locomotives will increase gross freight loads from the current 760 tonnes per locomotive to 1200 tonnes per loco, a jump of more than 50 per cent.

Ahead of schedule

New deviations of more than 40km at Eumundi, Gympie, Oakhurst-Aldershot and Benaraby-Parana will eliminate the

steep ruling gradients and sharp curves that now restrict operations between Brisbane and Rockhampton.

The 10km Eumundi deviation, north of Nambour, includes two railway overpasses, three road overpasses and a railway bridge across the North Maroochy River. The present route has a ruling grade of 1 in 50 compared with 1 in 90 on the new deviation.

The deviation passes through high and steeply sloped hills and escarpments requiring large cuts and fills. About 1,500,000 cubic metres of earthworks will be needed. The new route crosses the North Maroochy River at flood-free levels and also crosses a number of roads, all with grade separation. A crossing loop will be built on the deviation. This project is expected to be completed by September 1988.

The Gympie deviation is about 9.5km long, beginning just south of Monkland station. As with Eumundi, all road/rail intersections will be grade separated. Two crossing loops eliminate the tortuous sections of track on both side of Gympie station.

A station building will be built on the northernmost loop of the by-pass for

Gympie passengers. Gympie railway yards will continue to provide goods facilities. Commissioning is expected to be in October 1988.

The Oakhurst deviation begins near Oakhurst station and will be almost 7km long. Baddow station will be bypassed and a new station built on the deviation just north of Oakhurst station.

This project will end the delays to traffic at Baddow while passenger trains reverse into the section after stopping at Baddow.

The Benaraby-Parana deviation, just south of Gladstone, is about 16km long, beginning near Benaraby station and finishing near the junction of the North Coast line and the Moura line at Parana. The Toolooa crossing loop will go and a replacement loop will be provided on the deviation near Parana.

The deviation cuts out a long section of steep grades and sharp curves where trains stall in bad weather.



Want to know more about Australian Railways?



The XPT (Express Passenger Train) just south of Couburn, N.S.W.



Q.R. General freight train, Rockland.



V/Line blue metal train at Kilmore East.



Westbound passenger train at Crystal Brook, S.A.

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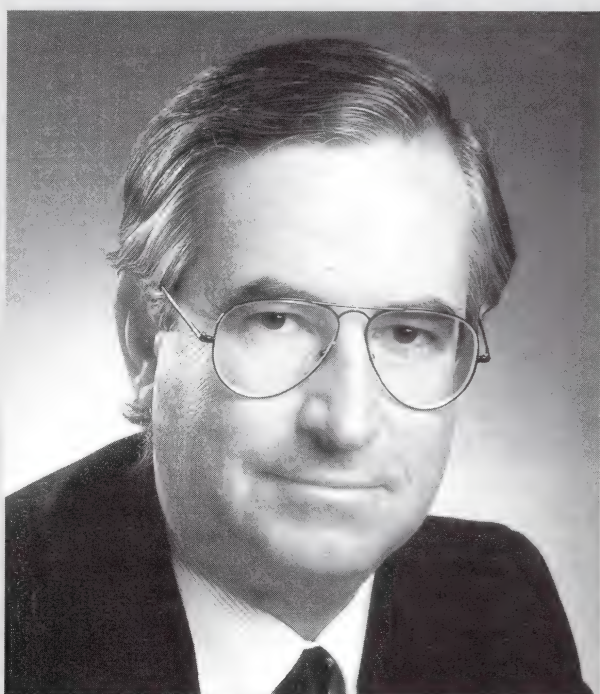
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Road freight's s

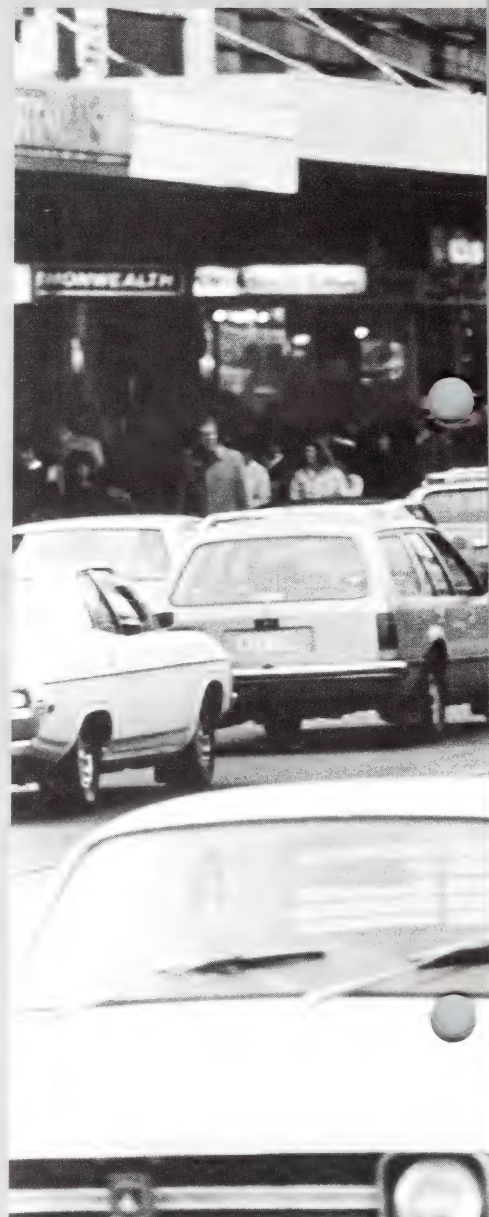
Australian National is concerned about the size of subsidies to the road freight transport industry being paid by private car owners through their registration fees and petrol taxes, according to Dr Don Williams, until recently General Manager of Australian National. Subsidies to road transport were distorting road-rail competition and

organisations, including the Australian Automobile Association. It has been suggested that charges paid by all road users should be based on the road damage their vehicles cause. "It is really a very simple matter to charge heavy vehicles with their true costs," Dr Williams said. "But to do this equitably, there is a need for better ways to measure the distance travelled



Dr. Don Williams

"Sealed tachographs are the only way to charge heavy vehicles their true costs"



hindering railways' progress to commercial profitability, Dr Williams said.

He welcomed the report of the interstate commission on road vehicle licence fees, which recommended large increases for heavy vehicles. "These are at least a good start towards getting a fair balance in road-rail competition."

The commission noted that, even with its increase, charges were well below cost recovery.

Australian National's concerns echo those expressed by other

by heavy vehicles and the loads they are carrying. This will only be known when sealed tachographs are installed in all road transport vehicles."

Tachographs, widely used in Europe and in New Zealand, record details of a vehicle's operation, including distance travelled.

Damage to roads increases markedly as loads increase. Overloading, which aggravates the problem, is common. For example, 28 per cent of vehicles tested over several months early in 1987 at South Australia's Ceduna weighbridge were overloaded. In

NSW, tri-axle overloading was found in 20 per cent of the vehicles tested.

Victorian surveys show overloading of heavy vehicles at a huge 34 per cent on some routes.

Estimates by the Bureau of Transport Economics of the cost of repairing damage to Australian roads suggest that private cars each cause \$182 worth of damage a year, while paying \$601 in road user charges. The average tri-axle semi-trailer causes damage estimated at \$50,250, only 34 per cent of which is recovered.

Sponsored ride?



City street scene: are private motorists subsidising road freight transport through their registration fees and petrol taxes?

Safety concerns

The road freight industry also aroused concerns about safety, Dr Williams said.

"The real facts concerning driving hours, speeds, overloading, and the potential for road accidents and trauma have been brought out in several inquiries. Now the road transport industry wants to increase driving hours to 15 a day, with truck drivers working 90 hours one week and 75 the next.

"What other industry in Australia would accept those conditions? Australia's

sense of fair play must extend to the road freight industry. Its working conditions must also reflect standards acceptable to all transport workers, and it should be responsible for its share of road maintenance costs."

Dr Williams said that within two years, three of Australia's rail systems would be earning profits from their freight businesses in spite of unequal competition from road transport.

"Extensive reorganisation has made rail more competitive with road transport," he said. "This is shown by the levels of cost recovery now being

achieved. Rail is already reaching 98 per cent recovery of costs on all freight operations from Broken Hill west to Perth.

"Rail can compete effectively. The mandatory installation of tachographs and effective enforcement of legal limits on loading would establish the facts and the real costs of road transport. Private motorists would be delighted to be relieved of the financial burden they are presently carrying."



Engineers told: pursue productivity

Can engineering contribute to productivity? An emphatic Yes was the answer from the national conference on railway engineering held in Perth. The conference was organised by the Institution of Engineers and jointly sponsored by Railways of Australia, Westrail, Hamersley Iron, Mount Newman Mining Company, and Robe Iron Associates.

Engineers must do two things, the keynote speaker, Jack Cann, retired vice president of Canadian National, told the meeting of 260 people from Australia and overseas. They must be relentless in their pursuit of productivity, and they must regularly look up from their computers to see their railway in proper perspective. Some engineers failed to see that the purpose of the exercise was to put technology to work so that a railway could be competitive and profitable. Engineers, who were largely responsible for the expense side of the ledger, had to make sure that their expenditure was kept below income.

To do this, Mr Cann said, engineers had to get the best use out of the physical assets of the railway, to innovate, and to generally make sure they got "the greatest bang for the buck".

Productivity, while it finally determined profit, had to be looked at broadly, Mr Cann said. "Productivity is not only doing things better, but doing things differently. It must be aimed at positive net income."

Railways could no longer be thought of in the traditional way, Mr Cann said. They would not continue to exist simple because it seemed they had always been with us. Railways had to earn their place or disappear. Engineers could be the prime movers in improving productivity if they were prepared to use their imaginations and look at different ways of doing things, Mr Cann said.

To keep railways competitive, many things were needed: better defined markets: better materials for rails and cars; plant rationalisation; better use of

locomotives and cars to reduce capital requirements and improve service; more study of intermodal operations; more efficient train control and fuel economies; and adjustments by organisations to suit the new technologies.

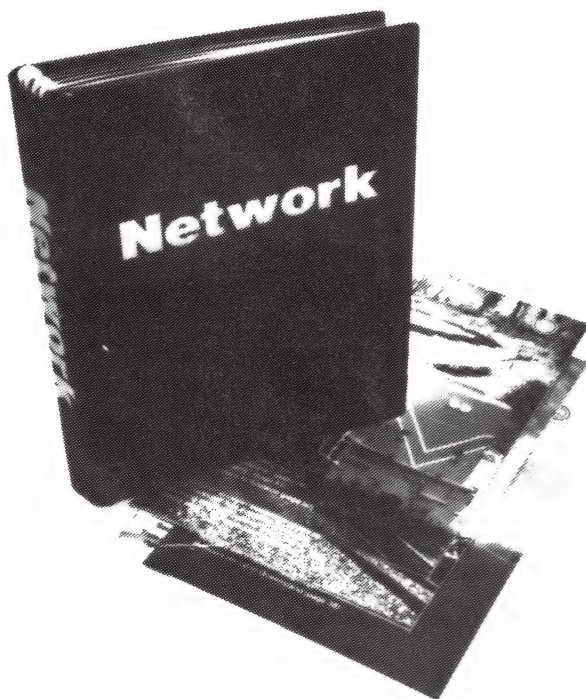
Another speaker, Mr P.J. Detmold, executive director of Advanced Train Control System in the US, made the case for automation of control equipment as the best way of increasing productivity.

Rail's future, he said, would to a large degree depend on how much automation could be applied to management and control.

Two Westrail employees, Cec Pearson (Engineer Special Duties) and Ric Leonhardt (Division Engineer Perth), presented a paper on improvements in job performance and job satisfaction among Westrail track maintenance gang workers involved in a participative work planning scheme.



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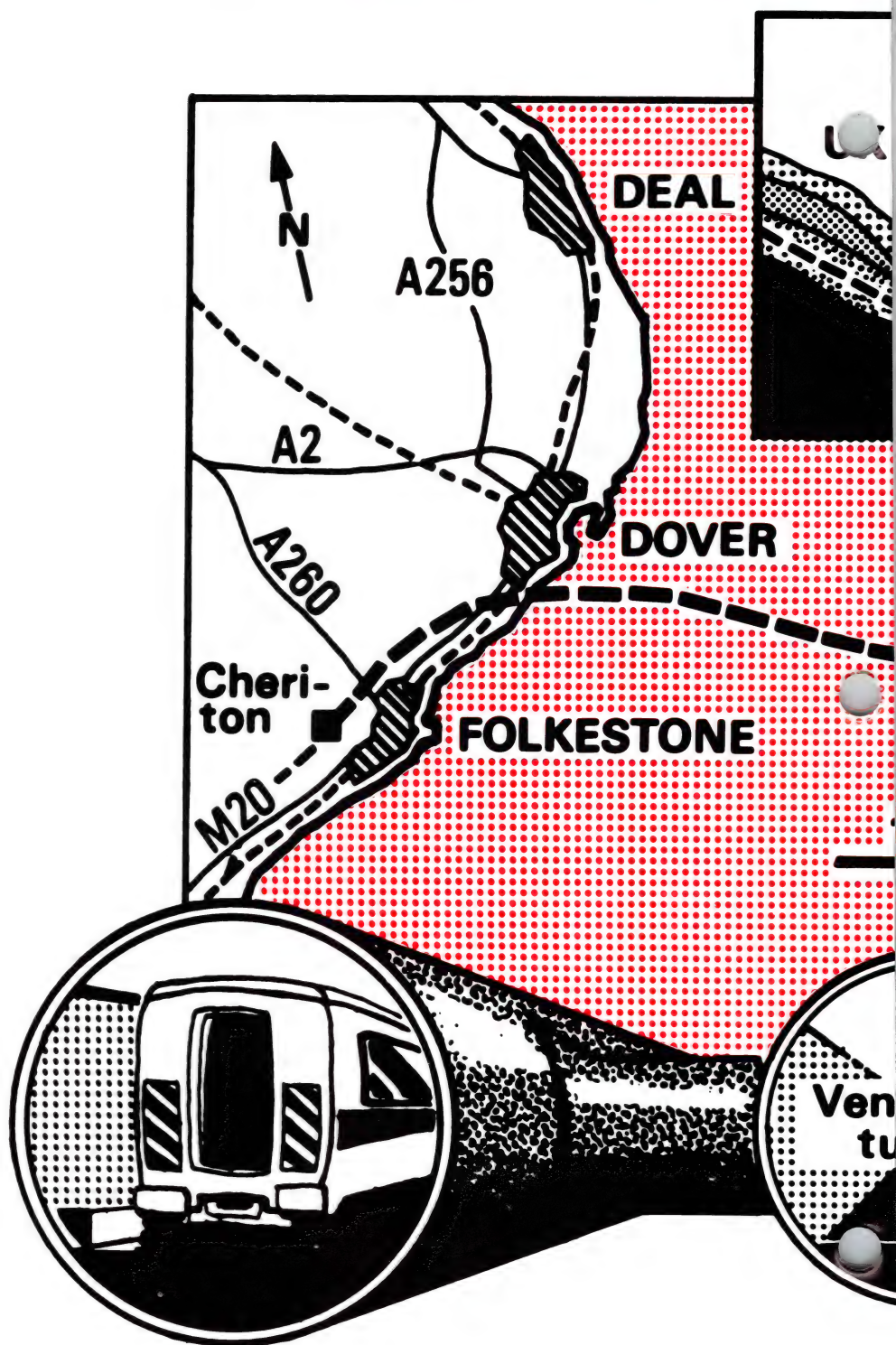
first train will cross

In May 1993, the first public passenger trains will link London and Paris through the Channel Tunnel. At last, after a series of proposals, false starts, near-misses and frustrations extending back well over a century, Britain and continental Europe will be connected by a completely reliable all-weather route.

The tunnel is the largest civil engineering project undertaken by Britain in recent times, and it is novel for being financed entirely privately. Unlike the last attempt, abandoned in 1975, there are no government guarantees; the risk and the reward will be taken by the Eurotunnel consortium and its shareholders.

In simple terms, the railways of Britain and France are to be joined by a pair of single-bore tunnels extending 49.4km from Cheriton, near Folkestone in south-east England, to Fréthun, close to Calais on the French coast.

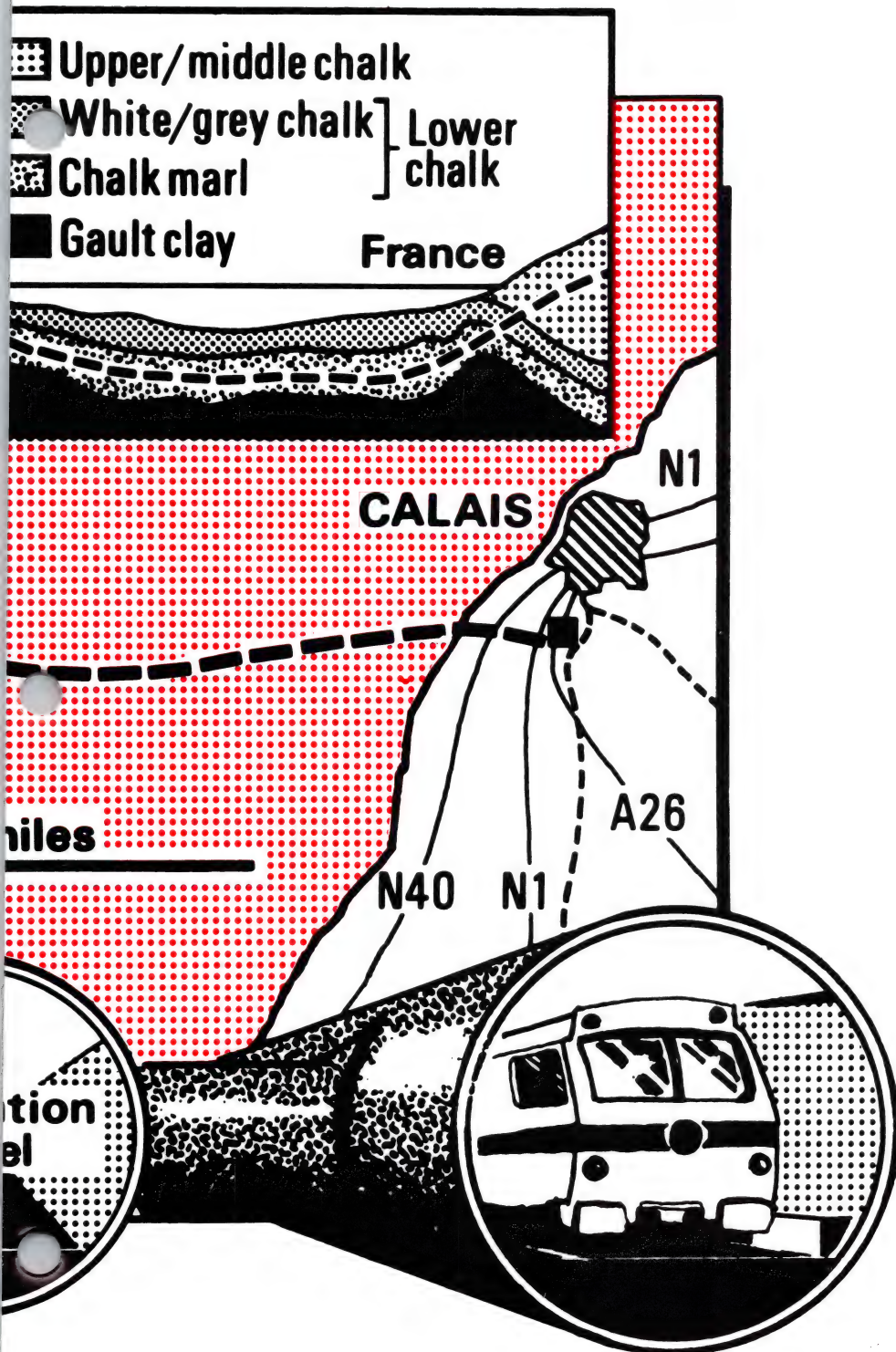
The tracks, electrified at 25kV 50Hz, will carry two types of services: regular passenger and freight trains operated by British Rail (BR), French (SNCF) and Belgian (SNCB) railways, and special shuttle trains run by Eurotunnel. The latter will carry road



sion takes shape

r it was proposed the

nder the Channel



vehicles between the terminals at each end. Reduced journey time and greater reliability and convenience will benefit travellers and freight moving by road as well as rail. With construction of high-speed rail links envisaged on the French side as part of the TGV-Nord project, journey time between London and Paris or Brussels will be around three hours.

Boring will start on both sides early in 1988, using 11 machines, from a vast shaft recently sunk to a depth of 70m at Sangatte in France, and from existing and new adits at Shakespeare Cliff near Folkestone, a site of previous preparatory workings.

The average work rate needed to meet construction schedules is 1.6km/h, and all tunnelling should be completed by the middle of 1991. Work on the service tunnel will always run a few kilometres ahead of the main bores, so that probing can be made from it into the ground ahead and to each side.

Communications

A range of systems will monitor and control all the auxiliary plant and equipment, and provide

(continued on next page)

communication with moving trains and maintenance staff. Radio contact with trains will be by ultra-high frequency (UHF) aerials mounted along the tunnel walls, while a continuous leaky feeder cable will serve maintenance and emergency personnel using mobile radios. There will also be a conventional hard-wired emergency telephone system with fixed handsets at every cross-passage.

Traction power for the 25kV overhead system will be drawn from substations at each terminal, fed at 225kV on the French side and at 132kV in Britain.

Each will feed half of the tunnel, though it will be possible for one substation to supply the whole length in an emergency, when trains will operate at reduced speed. The catenary inside the tunnel will be divided into 1.2m sections, each fed independently.

For the shuttle train service hauling road vehicles between the two terminals, rolling stock will be larger than any existing rail vehicles because of the need to accommodate road coaches and lorries up to 4.2m high.

There will be three variants of the shuttle wagon: double deck (25m long) for motor cars and their passengers; single deck (also 25m long) to carry road coaches and caravans; and a heavy-duty single deck version 21m long for lorries.

According to demand, tourist shuttle trains will initially run at 15 or 20 minute intervals, with a similar number of freight shuttles each hour.

Round-the-clock service will be provided 365 days a year with no booking necessary and shuttles running on demand at peak times.

Even at the height of the holiday season, it is envisaged that average stopping time for a road vehicle at the terminals need not exceed 20 minutes.

In addition to the shuttle trains, there will be regular high-speed passenger trains linking London with Paris and Brussels, and through trains may also run to and from other cities. A fleet of 40 to 50 train sets is to be built, each having up to 14 cars, with a power car at each end.

Estimates are that 16 million passengers and some eight million tonnes of freight will use the tunnel in its first year of operation.

What is wanted is a train that can travel through Europe at speeds of up to 310km/h

Control centres

Terminals at each end will have full facilities for both British and French customs, duty-free shops, rest and parking areas, maintenance workshops and intermodal freight handling facilities. The operational control centres will also be here, one on standby ready to take over from the other.

The railways on both sides of the Channel are investing heavily to cope with the tunnel traffic. In France, it is almost certain the the TGV-Nord Paris-Brussels-Amsterdam/Cologne railway will go ahead, and a branch from it will run to the tunnel mouth. This high-speed link is vital if the attractive three hours 15 minutes London to Paris journey time is to be achieved.

On the British side, there are no plans for a new railway to relieve the congested access to London over British Rail's southern region tracks.

But track upgrading, some resignalling work and strengthening of the 750 V dc power supply will permit a sustained speed of 160km/h.

Waterloo station in central London is to be the Channel Tunnel terminal, where a five platform layout will be built at a cost of £40 million. Including the British share of the cost of the new trains, BR plans to spend £398 million on Channel Tunnel infrastructure works.

Design work on many aspects of the tunnel continues, but the project is on course for digging to start in early 1988.

Design Competition

British Rail reports that Europe's top designers have been asked to create the "Train of the 21st century" for the opening of the Chunnel in 1993.

British, French and Belgian railways have launched a competition for the design of a new generation of trains that will speed millions of business travellers and holidaymakers across the Channel and beyond.

Three major design firms in Britain, France and Belgium have been given two months to produce ideas for the train that will woo passengers away from airlines and ferries with luxury travel between London and Paris or Brussels in well under three hours. The new trains will also link British cities with centres on the Continent.

The winners will then work up their designs for the manufacturers (possibly an international consortium) to build a fleet of high-speed trains.

"Here is a perfect opportunity for radical train design for the 21st century," says BR's design director, Mrs Jane Priestman. "We shall be looking for original thinking." What is wanted is a train that can travel through Europe at speeds of up to 300 km/h, offering an unprecedented level of air-conditioned comfort to travellers and incorporating customs and immigration controls. The design brief calls for not just first and standard class seating but family and nursery areas. The train must also cater for disabled people. Smokers will be restricted to a quarter of the train, and a quarter of the accommodation will be first class.

Designers will be asked to suggest a livery for the exterior of the new trains. Inside, passengers' seats will be generous and, because of customs checks, luggage will be stored close to its owners.

Catering facilities are expected to be exceptional. First class passengers will be served in their seats, and each train must include kitchens and two bars, as well as a trolley service.

Tables will be provided for business and leisure travellers, and nursery areas for looking after children. There will be telephones throughout the trains, and careful attention to passenger information.

"This is one of the most exciting challenges we could offer a design consultancy," says Mrs Priestman. "I am convinced that, as ideas emerge, they could have a radical influence on future generations of domestic rolling stock."

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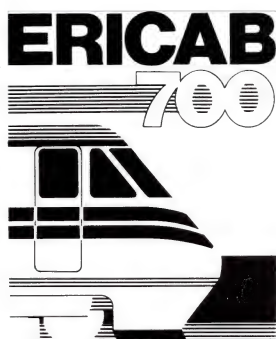
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VICTORIA STAKES A CLAIM TO LIGHT RAIL LEADERSHIP

Melbourne put forward a claim to leadership in light rail technology recently with the launching of its north-south light rail service.

The then Victorian Transport Minister, Tom Roper, took 200 guests on the opening run down the north-south route from Blyth Street, East Brunswick, through the Bourke Street Mall, and on to a new stop at Wright Street, Middle Park, next to the Albert Park lake reserve. The two light rail vehicles (LRVs) then ran a free service between Lonsdale Street in the city and St Kilda until 6.30pm.

Mr Roper said the two LRVs would complement 17 A Class trams in providing a full light rail link between East Brunswick and St Kilda and Port Melbourne.

"Depending on delivery of the LRVs from Comeng, the north-south link will be fully operational with LRVs by mid-1989," Mr Roper said. Industrial disputes at the Comeng factory at Dandenong had delayed the delivery of new vehicles. Comeng was building 130 LRVs at a cost of \$180 million. Mr Roper said the MET tram network

was now the biggest in the western world.

"Melbourne is Australia's only capital city with a major fully integrated multi-modal public transport system combining heavy rail, light rail, tram and bus networks. The tram network alone carries over 110 million passengers a year over 24 million vehicle kilometres, using 627 trams." Mr Roper said the LRVs had been designed for passenger comfort and efficient operation.

"The new vehicles coming off the production line are air-conditioned, with attractive, durable cloth covered seats," Mr Roper said. "They have seating for 76 passengers and can comfortably accommodate up to 106 standing."

The light rail vehicles were articulated, with an overall length of 23.5 metres. They were powered by two traction motors, developing a power rating of 195kw at 600 volts. Top speed was 70 km/h.

Mr Roper said the vehicles could operate on the converted heavy rail reserve, on special median strip road

reserves, and on carriageways shared with motor vehicles.

"All these innovations result in a flexible and cost-effective public transport system," he said.

"The system's flexibility in transporting large numbers of people almost from their doorstep right into the heart of the city quickly, safely and reliably has many advantages for transport planners, providers and users."

Mr Roper said the system's advantages were being recognised in other parts of the world.

"By the end of December, a total of 9 LRVs will have been exported to Hong Kong as part of the \$200 million contract to build the system there," he said.

"Encouraging discussions have also been held with representatives of the city of Shanghai about their transport needs.

"This is indeed taking our light rail technology to the world."





Taking light rail technology to the world: one of Melbourne's 76-seater LRVs.



Light rail festivities: satisfied customers on the opening day of Melbourne's light rail service between East Brunswick and St Kilda and Port Melbourne.

Left: former Victorian Transport Minister Tom Roper opens Melbourne's new light rail service. The service will be in full operation by mid-1989.

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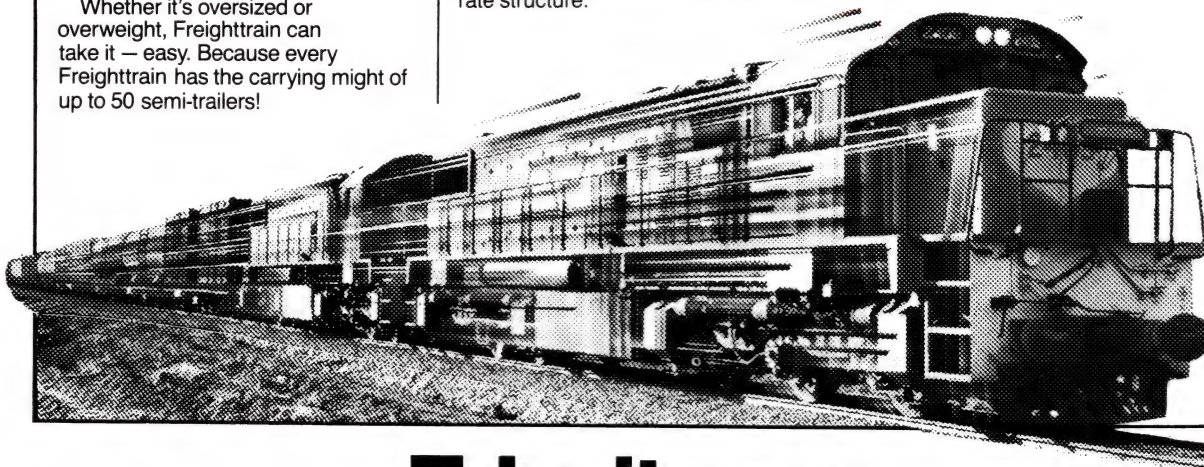
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UTA's new bus designed by computer technology

The New South Wales Urban Transit Authority's new route bus is the first in Australia to be designed using the advanced technology of finite element analysis (FEA).

Pressed Metal of Sydney developed the design with the UTA because advances in chassis design demand equally sophisticated bus and coach bodies if they are to perform at peak level.

FEA makes it possible to calculate with unprecedented precision the effects of stress and deflection forces on every part of the vehicle.

The new route bus design took a year of FEA programming, supported by the same amount of conventional design and draughting time.

Based on the Galvastress system of construction, the new bus is part of an order for 250 placed by the NSW Urban Transit Authority. This will bring the number of Pressed Metal bodied buses operated by the UTA to more than 2000.

The new design has improved vision for passengers because of slimmer window supports. Interior noise levels have been reduced, and the driver's area has new design features using different materials.

The outside changes are immediately noticeable with a new design of the front panel and windows. Doors are also wider and the body shape is more aerodynamic.

According to Peter Shepherd, general manager of Pressed Metal, Finite element analysis enables us to examine the future performance of today's designs and correct projected faults before they occur in practice.

"Significant improvements can therefore be made at the design stage and not as an afterthought."

The Galvastress frame has galvanised components and panels for corrosion protection through a typical 20-year lifespan.



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The Lecture Room



The Lounge area

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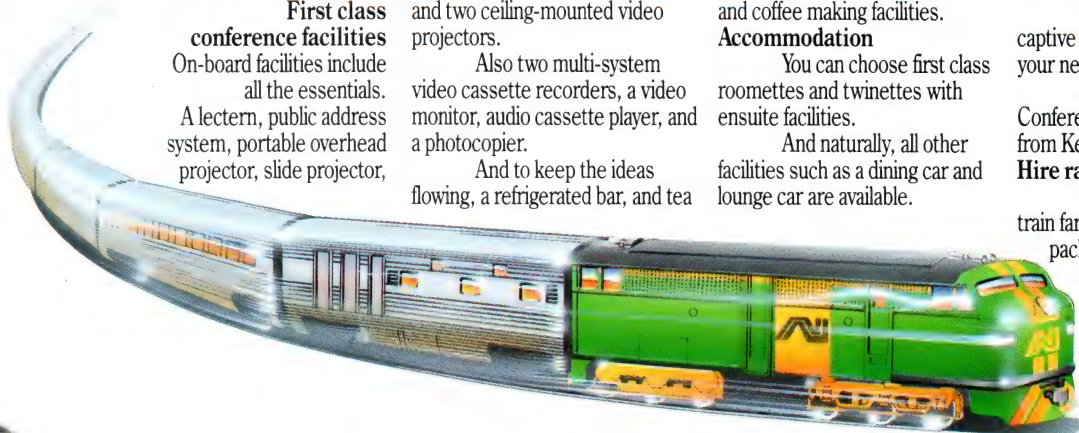
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Australian National

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V/Line streamlines



Terry Mulligan, V/Line's General Manager of Freight Services.

**'Growers realise
we have taken
grain haulage
from the 19th to
the 21st century
in five years.'**

V

/Line will not increase 1987-88 season grain freight rates at the 500 central receival points (CRPs) that handle half of the annual harvest tonnage.

V/Line will not increase 1987-88 season grain freight rates at the 500 central receival points (CRPs) that handle half of the annual harvest tonnage.

The CRPs are strategically located storage sites in the main grain catchment areas designed for fast and efficient receipt and clearance of grain freight. At the smaller fill-and-close silos in the grain network, there will be an average 3.8 per cent increase in grain rates. This means the maximum fill-and-close silo increase will be 95 cents a tonne.

The average overall grain rate increase is only 2 per cent. The Victorian Government is subsidising the difference between V/Line's expected costs and long-term efficiency costs following the completion of the Canac grain network improvement program. Depending upon the size of the harvest, the subsidy will be between \$2 million and \$8 million in 1987-88. V/Line has been working with growers to monitor grain freight costs, and Victorian grain rates more accurately reflect the costs of moving grain than do those of some other states. There are no hidden subsidies to make a difference between the rates charged and costs incurred in grain transport.

Most interstate comparisons confuse freight charges with freight costs and ignore the fact that grain transport is more heavily subsidised in other states.

As a result of the examination of grain costs, initial estimates were lowered by

V/Line and raised by the Victorian Farmers' Federation consultants, Price Waterhouse Urwick.

V/Line's General Manager of Freight Services, Terry Mulligan, says that while grain freight rates are based on costs and investments, there will always be different cost model assumptions and arguments about their theoretical and practical applications.

"The main thing is that most growers realise we have undertaken an investment program that is essentially taking grain haulage in Victoria from the 19th to the 21st century in five years," Mr Mulligan says.

"Transport costs have been significantly reduced by use of CRPs, with faster throughputs and clearances, so it's commercially sound to introduce differential pricing to encourage more grower deliveries to CRPs."

Terry Mulligan says most growers realise the need for level-headed determination of freight rates by cost rather than relying on subsidies and cross-subsidies that tend to perpetuate inefficiencies.

"Naturally enough, at a time of falling real wheat incomes and uncertainty in the world grain market, growers are vitally concerned to contain cost increases in grain handling and transport," he says.

"V/Line is committed to cost efficiency and continuing real reductions in rates."

Improvements

In the past four years, V/Line's grain rates have risen by only 9 per cent (with a real reduction of 21 per cent). At the same time, nearly \$100 million

the grain network

has been invested in new infrastructure, locomotives, rolling stock, and other capital improvements. "Victoria's grain network based on the CRP system is now the most efficient in Australia, provided we achieve optimum use of the fixed assets that have now been rationalised and upgraded," Mr Mulligan says. "Increasing use of roads under deregulation of grain would undermine the efficiency of that modernised grain network."

Terry Mulligan says the question of deregulating grain freight must be examined against proper cost studies, including levels of road recovery costs from articulated vehicles and social costs.

Deregulation in Victoria would inevitably have the same consequences as the deregulation of air traffic in the US.

"The airlines are responding to competitive pressure by cutting back on fleet maintenance to the point of endangering flight safety. In short, services have deteriorated with customers bearing the consequences," he says.

"In Victoria, there would be increased costs to the grain industry and to taxpayers as a result of deregulation. The apparent short-term benefits tend to obscure the long-term costs." The 1987-88 grain operations plan modifies and refines previous schedules. The main emphasis is on bigger block-trains running to Geelong with a minimum of maintenance and other delays.

"We cannot afford any late running in the network," says Dennis Leviny, Movements Planning Manager.

"We now have an exact timetable of train movements with the right

locomotives and the right sets of rolling stock for every line."

Peak period

There will be six trains a day in the peak harvest period, including five bogie-wagon block trains with either 31 or 40 wagons per train and one 45 (GH) four-wheel wagon train.

Three block trains of 50 bogie wagons each will also run into Portland every day on the upgraded Ararat-Portland line.

The line, with 11 crossing loops and extended yards at Portland, was commissioned in July 1986.

In the past 18 months, V/Line has finished the siding and track work at 31 CRPs, with another 16 due for completion in 1988.

The main Mildura line, through Donald, Dunolly and Maryborough, which takes one-third of Victoria's grain harvest into Geelong, is being upgraded with 14 crossing loops, nine of them completed in 1987.

Three of the five light lines scheduled for upgrading under the Canac program — at Woorinen-Piangil, Shepparton-Dookie and Manángatang-Robinvale — are completed.

V/Line now has a grain freight system capable of moving future harvests with maximum economy of resource use. Terry Mulligan says the key to lower grain freight rates is to make full use of the fixed assets, the infrastructure of V/Line's handling and transport system developed over many years.

He believes that the grain industry should be wary of moves towards freight deregulation.

"I believe the grain industry must carefully consider the differences in the standard of service provided by

V/Line and other likely entrants into grain transport in Victoria in a deregulated network.

"As an American Senator recently said in response to a growing call for re-regulation of the US airline industry: "You can't unscramble the egg."

New Superfreighter

V/Line's new direct Superfreighter service to Brisbane three times a week — on Tuesdays, Wednesdays and Saturdays — was introduced in mid-October.

The Melbourne-Sydney-Brisbane Superfreighter, which operates from Monday to Friday each week, has proved a great success. Now the service is even more versatile. Launching the express Superfreighter, V/Line's Senior Marketing Manager for Container Systems, Marinus Van Onselen, said: "The increase in demand for fast container freight services in the last three years had been rapidly catching up with V/Line's capacity to provide more space, particularly in the Melbourne-Brisbane corridor.

"The new Melbourne-Brisbane Superfreighter will not only provide much needed additional capacity, but also allow clients to deliver their containers to the South Dynon terminal as late as 7.45pm on Tuesdays and Wednesdays." The normal cut-off time for the Brisbane Superfreighter via Sydney is 5.30pm.

The Melbourne-Brisbane Superfreighter arrives at Brisbane's Acacia Ridge by 7am on the second morning after departure from the South Dynon terminal.

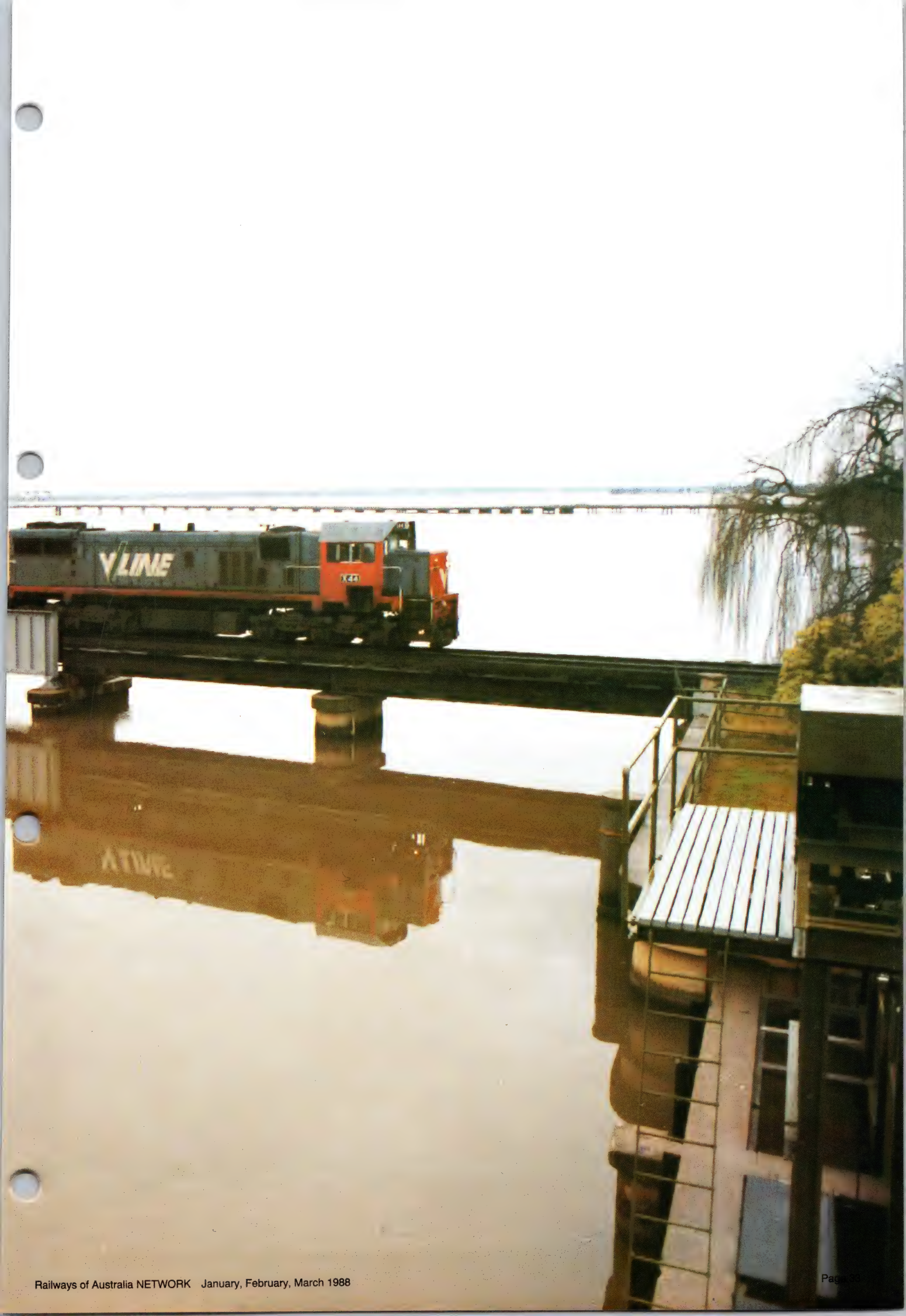
(continued on page 34)



Main picture: Over the border, over the water at Lake Mulwala: a V/Line grain train heads south to the seaboard terminal from Oaklands junction.

Inset: The Sydney Superfreighter (outside) and the Adelaide Superfreighter leave Melbourne's South Dynon terminal at 6.40 pm and 6.45 pm six nights a week.





'There are definite economic advantages for freight movers to invest in containers rather than road rigs for long haul distances'



Marinus Van Onselen, V/Line's Senior Marketing Manager for Container Systems.

(continued from page 31)

"Both domestic and deep-sea container freight is moving on the Superfreighter with big cost savings for freight forwarders, manufacturers, shipping companies and agents," Mr Von Onselen said.

In the last three years there had been a five-fold increase in V/Line's Superfreighter capacity into and out of Melbourne — from 400 slots (single standard container spaces) to nearly 2,000 slots a week.

Quick growth

"I can see this capacity doubling again in the next two years," he said.

"Many freight companies are acquiring more highly specialised containers suitable for carrying liquid, dry-bulk, hazardous and refrigerated commodities on Superfreighter services.

"The Superfreighters have proved their reliability, safety and price competitiveness against other transport modes. Their regular overnight transit schedules, at passenger train speeds, have priority status. They run as unit or block-trains with a set number of wagons from point to point with no shunting or marshalling of wagons en route."

The container freight business is the fastest growing of V/Line's freight services. By 1992, container freight volume is projected to increase by more than a million tonnes to nearly 4 million tonnes a year.

Mr Van Onselen says V/Line sees itself as a silent partner to trucking and shipping companies, enabling them to

expand their services without increasing their capital costs.

"There are definite economic advantages for freight movers to invest in containers rather than road rigs for long haul distances," he says.

"There are also social advantages in having fewer trucks on the roads."

Save costs

V/Line is also a landbridge for importers and exporters to and from Melbourne, Australia's largest container port. Ships can discharge in Melbourne, and shipping companies or their agents can save steaming time and cost by sending sea freight on by rail to other ports such as Adelaide and Brisbane.

"The Melbourne-Brisbane Superfreighter, like the Adelaide, Perth and Sydney Superfreighters, is always heavily booked, and we are growing the train to meet the increasing demand. We are already planning to run the direct Melbourne-Brisbane service five or six days a week next year," Mr Van Onselen says.

V/Line's South Dynon container terminal is rapidly expanding its annual throughput. In 1986-87, 62,000 container units were handled; by the end of 1990-91, capacity should be 200,000 units.

This growth will involve extensive development of the 20ha site, investment in more mobile handling equipment and the introduction of computer-controlled documentation and container tracking systems.





The Premier of Western Australia, Brian Burke, takes the new Australind out of Perth's City Station on its inaugural trip. In the cab with him is WA Tourism Minister Pam Beggs.

AUSTRALIND'S NEW ERA

When the Premier of Western Australia, Mr Brian Burke drove Westrail's new Australind train into the Bunbury passenger terminal, he opened a new era of high-speed intercity rail travel for the people of the South-West.

The Australind was built in WA by Comeng Ltd at cost of \$9 million. It went into commercial service on 16 November, replacing the Australind train running since November 1947. Mr Burke said the new Australind would cruise at 110km/h, and would cut the 185km trip between Bunbury and Perth to two hours.

The train's inaugural run was sent off in Perth by the Lord Mayor, Mr Mick

Michael, and the Minister for Tourism, Pam Beggs. On board were 200 guests, including the Minister for Transport, Gavan Troy, the Mayor of Bunbury, Mr Dick McKenzie, members of State Parliament, and heads of WA industry.

The train stopped at seven towns along the way so that the Premier could thank children who had decorated their stations.

At Bunbury, the train was greeted by a brass band, the combined choir of Bunbury schools and the release of 2,000 balloons.

"The South-West and Bunbury stand to benefit greatly from having a fast rail link to Perth," Mr Burke said. "This train

will also bring significant benefits to towns along the way, such as Pinjarra and Harvey.

"I can foresee people commuting for business in Perth from the South-West. And travellers will be lured to the tourism destinations by the attraction of a top-class train."

The new Bunbury train will have five stainless steel self-propelled cars, similar in style to the successful Prospector train. It will seat 200.

"Passenger facilities are the very latest and should attract many more people to rail travel," Mr Burke said.

The seats rotate and recline and the windows are tinted and double-glazed.



Driver Brian Stevenson takes the old Australind out of Bunbury on 14 November for the last time — just 10 days short of the great train's 40th birthday.

Right: The new Australind, providing an express service of two hours for the 185km journey between Perth and Bunbury.

The train's fast cruising speed of 110km/h has been made possible by a \$23 million project to upgrade the South-West mainline. The project, intended mainly to benefit freight trains, was finished in July 1987.

The Australind will make two return journeys each day except Sundays, when it will make a single return journey.

Each car will be driven by a six-cylinder, 19-litre turbocharged diesel engine and will have a separate 8.2-litre V8 engine for air conditioning and other services.

The train will provide either an express service of two hours for the 185km journey between Perth's City Station and the new Bunbury Terminal, or a two hour 20 minute service stopping at up to 10 towns, including Kelmscott, Pinjarra, Waroona, Yarloop, Harvey, and Brunswick.

Refreshments

Each of the three cars with driver's compartments seats 40 passengers and seats can be removed to provide space for a wheelchair. These cars serve light refreshments and snacks.

The two non-driving cars seat 60 passengers, who gain access to the catering facilities in the driving cars through the fully enclosed concertinas connecting the cars.

The interiors of the cars match any world-class intercity trains. Seats are body contoured and fabric upholstered, have folding tables and can recline and rotate to enable passengers to face the direction of travel.

Special attention has been given by the manufacturer to keeping the interior noise levels low in accordance with Westrail specifications. It is expected that the cars will be quieter even than the Prospector railcars

designed and built by the same manufacturer in 1971.

The railcars are sleek, 20 metres long, air conditioned and made of stainless steel. Each car is powered by a 19-litre Cummins underfloor diesel engine through a Voith hydraulic turbocharged transmission to air suspension bogies. Auxiliary power for air conditioning, lighting, and cooling fans is provided by a 60kw Detroit/Stamford diesel alternator set. The estimated tare mass of each railcar is 46 tonnes.

The present Australind has run between Perth and Bunbury since November 1947, providing a diesel-powered service in each direction daily except Sundays.

The single fare Perth-Bunbury for the new Australind will be \$13.80 (adults) and \$6.90 (children, students and pensioners). This is the same as road fares but slightly higher than the old Australind fares of \$11.20 and \$5.60.







Ivan James Gibbs

Queensland's new Minister for Transport

The new Queensland Minister for Transport, Ivan James Gibbs, was born in Whittlesea, Victoria in 1927. In his early years, he worked on a 14 mile mail and paper run, as a contract labourer for farmers, and as an apprentice in the grocery trade.

At the age of 18, Ivan Gibbs took over the family general store. In 1956, Mr Gibbs and his wife, Doris, and their two sons moved to the Gold Coast, where he established a successful automotive spare parts and wrecking company.

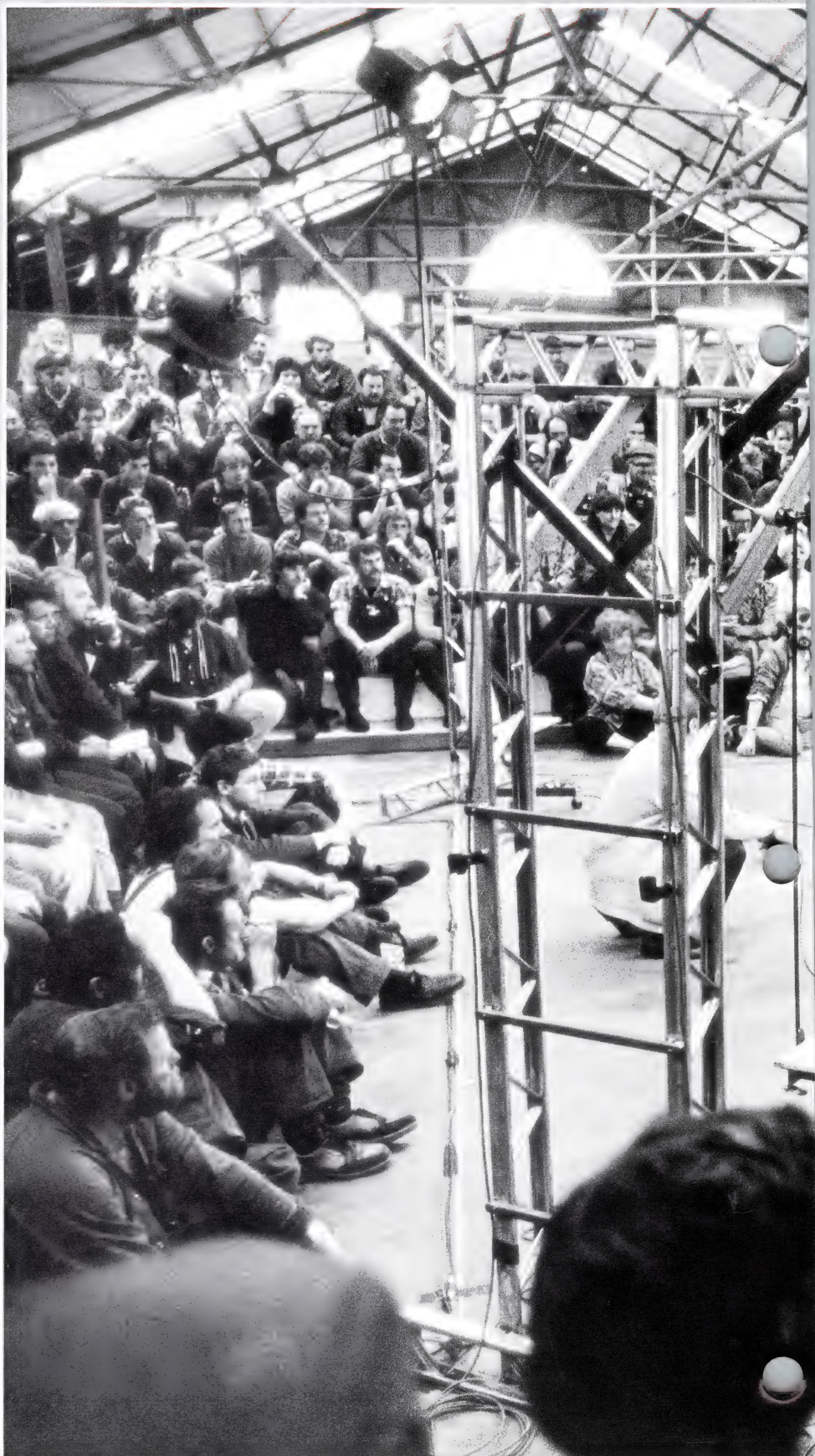
Mr Gibbs has maintained this interest in the transport industry and is keen to use his experience in government as Transport Minister.

In 1967, he was elected to the Gold Coast City Council and founded the Gold Coast-Albert Industrial Promotion Committee, which brought new jobs and heavy capital investment to the region. He served two terms as an alderman and was deputy mayor of the Gold Coast from 1973 to 1976.

Mr Gibbs entered the Queensland Parliament in 1974 when he won the seat of Albert for the National Party. His electorate takes in one of Queensland's fastest developing growth corridors from Labrador on the Gold Coast to Beenleigh on the southern outskirts of Brisbane. In August 1979, he was appointed to the Cabinet as Minister for Culture, National Parks and Recreation. In December 1980, he was promoted to the Mines and Energy portfolio, and in December 1986, he was appointed as Minister for Works and Housing.

Right: A spellbound audience in the workshop warehouse at AN's Islington Workshops in Adelaide watches the Adelaide-based Junction Theatre Company's production of Shunters. In the audience was the Federal Minister for Land Transport and Infrastructure Support, Mr. Peter Duncan.

Theatre comes



to Islington Workshops





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THE AGE OF THE TWELVE WHEELERS

By a Network Correspondent

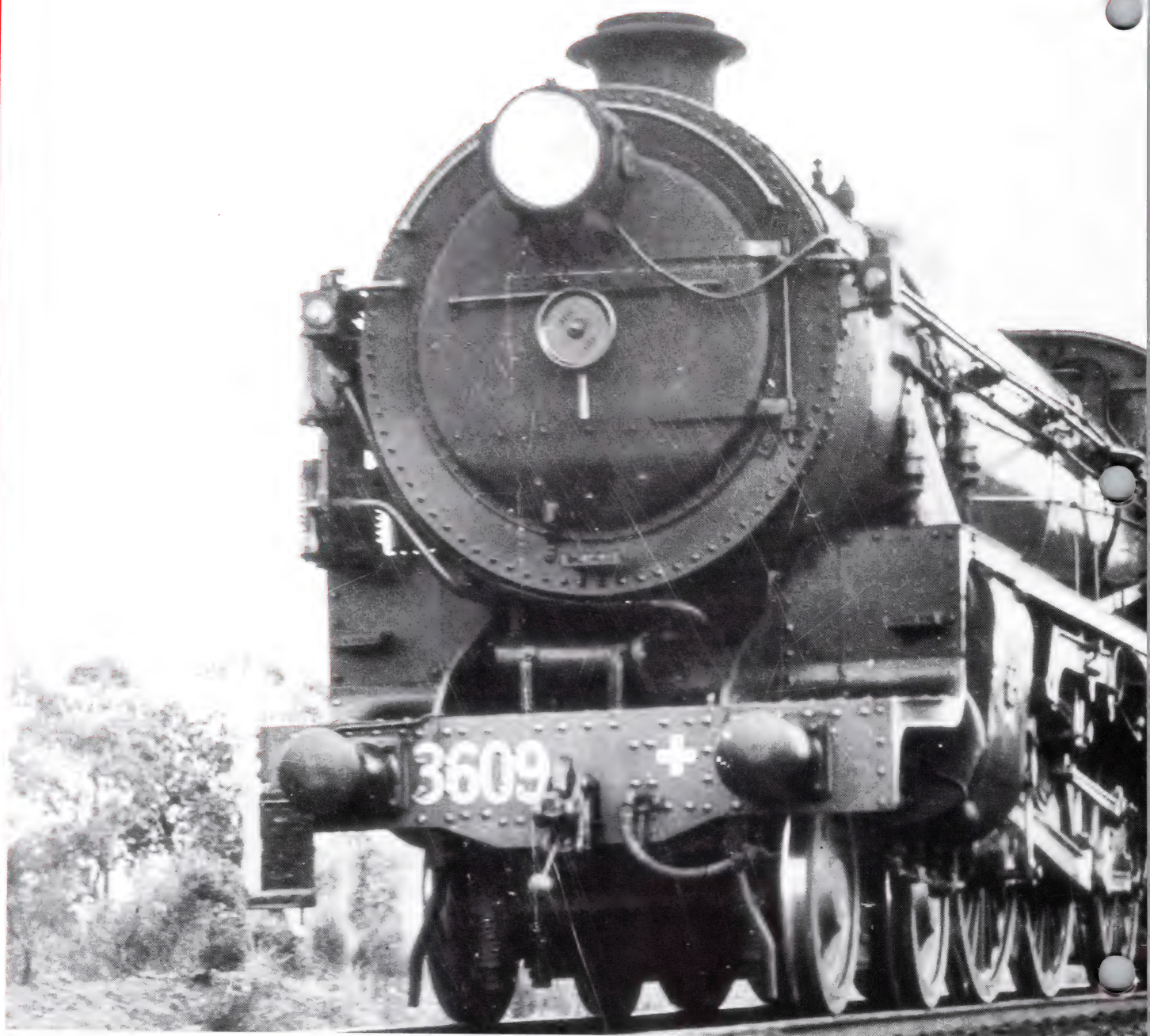
There are railway carriages with 12 wheels and there are the Twelve Wheelers.

As early as 1879, the old NSWGR imported from Ashbury's of Birmingham eight 12-wheeled non-corridor (dog-box) cars based upon Tom Clayton's 1876 Midland Railway model.

A locally-built American-style 12-wheel diner, various sleepers, Mann Boudoir cars and genuine Pullmans followed. These were copied locally as chair coaches in the new century.

But these were not the *real* Twelve Wheelers. The real ones were a product of the Edwardian

era; they arrived on the scene when the travelling public and its duly elected representatives started to demand more space. The Edwardians wanted corridors, electric light, lavatories and other extravagances. So the coaches got bigger, their bodies longer, the trains heavier, and the people actually moved per tonne of empty weight became fewer. Added to this were the extra drag of belt-driven generators, and a tonne or so of batteries, to replace kerosene or gas. The Traffic resisted, as always. Happily, they were overruled. An extra engine was coupled on.



The rationale for having 12 wheels was not previous use, the size of the new car envisaged, or the fear of a heavy axleload if there were only eight wheels. It was the notion — true at the time, but usually for the wrong reasons — that a traveller needed 12 wheels for a smooth train ride, just as he needed four funnels to go fast across the Atlantic, or two across the Tasman. Until computers were invented, it was not known that the physics of a railway bogie's motion are extremely complex. Some Edwardian railways built 12-wheel coaches that always rode reasonably well, for reasons that should have been wrong, and others built cars whose ride was never good and became atrocious six months out

of shops, despite all the "right" features being built in. Nobody really knew why, except that a big, long, heavy body and softish springs seemed to help. Happily for Mr Lucy, the NSWGR's gentlemanly Chief Mechanical Engineer, the Twelve Wheelers were in the first category. The first model to come out was the TAM sleeper of 1913. Weighing in at 47 tonnes for just 20 across-the-car berths (the previous model had carried 22 for five tonnes less), the TAM set a new standard coach length (21.5m) and had a central cross corridor that was supposed to balance the car. The sleeper had the attendant's

compartment amidships, and five two-berth cabins and a lavatory on either side. It was a big car — so big that the first time a TAM ran down the Cowan Bank to Hawkesbury River, a hostile tunnel sheared off its roof ventilators. It was not long before other Twelve Wheelers appeared to join the TAM. They came in bewildering and often-changed configurations: there were even some three-way composite Sleeper, First and Second cars so that the Circuit Judge and drunken riffraff returning from the Easter Show could all ride under one roof, from Sydney Terminal right through to the end of now long-closed branch lines. All of Mr Lucy's Twelve Wheelers were heavy. Others in the TAM breed



*The Twelve Wheelers were in their prime in 1936. Here the Newcastle Express is seen near Cowan.
(Photograph by John Buckland)*

weighed in at 42-46 tonnes for a typical 64-seat (four across) second class, when the non-corridor dogbox 20 years earlier had carried only four fewer people but, at 26 tonnes, had weighed just over half as much as a Twelve Wheeler.

Roaring Twenties

The power of a 4-6-0 steam locomotive was finite and the gradients of New South Wales exceeding severe, so at weekends and holiday time the Traffic had their way. It was not a Twelve Wheeler that was dragged out of those grim carriage sheds around Sydney Terminal and Redfern, and shunted onto the front of the Mail. It was an 1890s-model dogbox, or a

corridor derivative of one on the same dogbox chassis.

If you scored the regular Twelve Wheeler instead of the dreaded dogbox, you could generally be assured of a good ride. It did not have the annoying lateral judder-judder combined with a bouncing action that afflicted the shorter eight-wheel cars on the NSWGR at any speed above about 60km/h.

Until the era of diesel locomotives and retrofits of knuckle couplers, a Twelve Wheeler was also remarkably free of longitudinal shocks. The heavy cars were screw-coupled, with side buffers. They had a relatively soft draw gear action, and the steam engines that pulled them had about half the starting

pull of today's diesels, plus more slippery feet. The driver of a steam-hauled Mail had to start off fairly gently or wheelslip might prevent his starting at all.

The same sidebuffers that cushioned your ride also encouraged the car behind to rear up and over yours in a smash. But the Twelve Wheelers were better than most old wooden coaches in this respect; short steel anti-collision posts were installed at the car ends. No wooden car was safe in a bad crash, but at least there would be no fire, for after the Twelve Wheelers there was no gas on new cars in New South Wales until the arrival of Mr Phillip Shirley's late and unlamented Public Transport Commission.

Twelve wheelers came in bewildering configurations

Starved of the capital for new country cars, the PTC rediscovered gas for heating, and installed it under a wide range of old wooden trains. This warmed the patrons but turned the safety clock back fifty years. Fortunately there were no fires and almost all these cars have been scrapped.

Was LPG a diesel-era replacement for steam heating? No. The people of the old NSW who designed the Twelve Wheelers wintered in temperate Sydney, not the mountains. And they came from an age where proper heating was considered rather pansy. Steam was used to pull trains and never became widely used for heating in NSW.

So at 6pm, before your Mail left Sydney, along would come a pair of burly porters with a trolleyload of piping hot lead-acetate footwarmers, two of which they would heave into each compartment. By Katoomba, the footwarmer's warmth would be sadly reduced, and by Lithgow all but gone, even after vigorously shaking the thing. After bleak Bathurst, the passengers would be huddled under their prickly Kiapoi rugs, while condensed breath trickled down the window panes, and the wheels below and the winds outside roared the train on to a cold western dawn.

Twenty years on

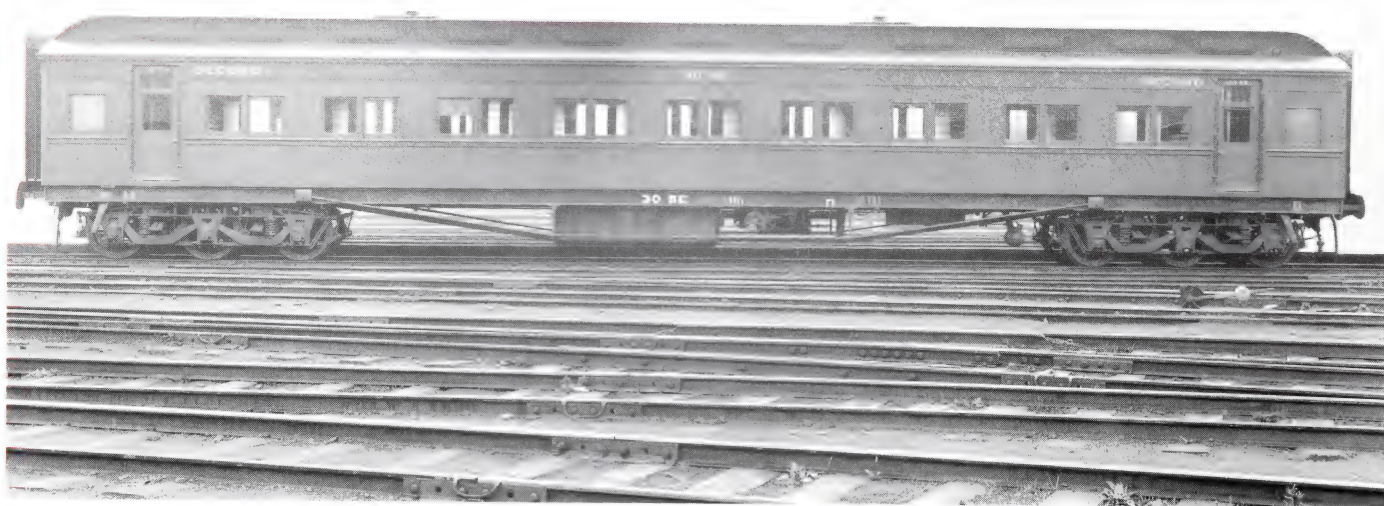
The first Twelve Wheelers were built in the carriage works at Eveleigh, handy to the elegant late Victorian CME's office building that still stands on Wilson Street. In those days, Australian structural and furniture timbers were cheap and still available in great variety. Craftsmen coachbuilders turned out superb jobs at reasonable cost.

The sleepers were always the most prestigious Twelve Wheelers, the most famous of all being the final three KAM cars of 1938. Chair cars were built not only by railway shops but by wooden-car factories like Clyde Engineering (which later made trams), Ritchie Brothers at Auburn (a rambling collection of whitewashed buildings across the line from the Australian General Electric appliance factory), and the Meadowbank Manufacturing Company, whose plant has completely disappeared. Its site was so cramped, an old NSW surveyor said, that he had been asked to lay out its traverser with a curved track on the traverser table so as to angle the cars on to the exit track.

From 1913 to World War Two, the TAM sleepers and most of the Twelve Wheelers that followed had a rich varnished light cedar timber finish. The

Melbourne Limiteds, all sleeping car trains assembled from matching dome-roofed coaches, looked particularly handsome. The brass handrails were always brassoed up by the conductor. These set off the varnished exterior and the sleeper interiors were a symphony of dark red polished maple, nickel-plated fittings, imported pile carpets, and bevelled plate glass. The upper berths were made up with crisp white linen, and the lower seats were genuine soft leather, with white antimacassar cloths. Rounded ceilings were of white enamelled iron, with intricate leaf patterns pressed in. A carafe of water sat in its frame and a friendly smell of furniture oil and starch permeated your home for the next 12 hours.

Passengers liked to walk up to the front of their train to see the engine, always a 36 class 4-6-0 and, by the late 1930s, usually a bright green one. Its Westinghouse brake pump panted a rapid "pshaw-pshaw" and its turret tender was piled high with the best Maitland coal. The fireman would be shovelling many, many tonnes of this into the hungry firebox on the long pulls through the hills. On the Melbourne Limited, he would have a banker engine from Picton up the 1 in 75 to Moss Vale, and his successor from Goulburn would take another



Twelve Wheeler carriage: Some Edwardian railways built 12-wheel coaches that always rode reasonably well and others built coaches whose ride became atrocious six months out.



*The southbound Melbourne Limited arrives at Albury in October 1935 hauling its rake of Twelve Wheelers.
(Photograph by John Buckland)*

banker across the 1 in 40 of the main range to Junee.

There was competition, even in those days. Holyman's DH86 aircraft were soon to take those in a hurry, and the coastal and overseas mail steamers vied for the business of the tourist. Business was divided more or less evenly between the boats and the train.

Thirty years on *~? 1943?*

"What do you best remember," we asked Gran, "about train travel during the war? Was it the permits and the crowding?"

"No, dear" she replied, *RoT.* "it was those terrible curves, up near the Border Tunnel. The drivers always seemed to run much too fast and the ladies would be sick. Quite sick. The children were always sick too, on those terrible curves. The men had their bottles, you know, so that they didn't seem to notice. Those men who weren't at the war. And of course, the Brisbane trains were full of Americans."

What, then, shall we include in our screenplay of interstate travel, Twelve Wheeler-style, in our Australian film depicting the World War Two scene? Will we choose the Melbourne Limited, with Neal McCusker's two vanloads of explosives regularly coupled on the

back? Or will it be the Brisbane Limited of 1943, an engine with a sonorous number like Thirty-Six, Thirty-Two, hurrying its mixed string of varnished and Tuscan red Twelve Wheelers down the MacPherson Ranges, spoked wheels a blur and flanges ringing as it rockets around Gran's inadequately-banked terrible curves? An eight-seat Second Class ladies-only compartment is filled with precariously placed luggage on the racks above, and unaccompanied ladies returning from invented funerals in Brisbane. A small boy is throwing up into a grey felt Akubra, size 6, with the hatband of one of Sydney's better Catholic schools. His elder sister retches into a woven straw hat bearing the label Peapes of Sydney.

The sliding door opens. Enter a tall American, vaguely resembling a youthful President Reagan in USAAF khaki. He eyes off the Red Cross nurse from Toowong, removes soft uniform cap. He opens it, hands in begging bowl position. "Can Ah be of assistance, Ma'am?" Remember the American market.

Thirty-six Class whistles for The Risk. Mr Lucy's inadequate English bogies fall into hole of wartime roadbed. Ronnie falls into the compartment. Cut.

Forty years on

"Albury, Albury! All change!" Stinking from a long, hot summer night roaring through a tinder dry Riverina in a non-airconditioned train, cinder-eyed from 646km behind a big coal-burning *RoT* Pacific with the windows open, the national servicemen, the dirty-collared nashos, and the dishevelled public pour on to the platform from Number 3 down Melbourne Express (7.30pm from Sydney, and always referred to as the Second Division). Many of the coaches are wooden Twelve Wheelers; some are their 1935 model steel-sided successors from Clyde Engineering.

Every passenger who is not hung over or still blind drunk is ravenously *Bull* hungry. There was no diner on the old and unlamented Express, just the supper rush at Moss Vale.

So here we are, *?* nashos changing at Albury the morning after. Behind us on the broad gauge platform stands the Spirit of Progress, a symphony of riveted boiler plate, dark blue enamel and the tinted glass that bespeaks air-conditioning. The Spirit has a real diner with the name "Murray." From its galley there comes a tantalising aroma of bacon and eggs . . . but not for you, laddie. You are a nasho from the Second Division, which arrives before

It didn't matter if you were 18 and in recruit's uniform

and will follow after the Spirit. For you, there is the scrum-down in the Ref red-ment Room.

The forgotten NSW train is shunted to clear the platform, and in strides the Melbourne Limited, 8.10pm from Sydney and, like the Express, brought right through by another big 38 class engine, without change and on time. The Limited is a rather different kind of NSW train from the Express — a solid train of Twelve Wheeler sleepers except for the van, and a solid First Class of patrons, businessmen and people who actually tipped. (Older State Rail traffic employees will remember patrons like these, and tips — both disappeared with the Austin baggage tractors and porters at Sydney station.) Down from the TAMs and KAMs descend the unhurried ruling class, the odd uniformed officer included (don't forget to salute him). Over they toddle to the Spirit, where VR conductors are pleased to yes-Sir car five; and no-Sir don't worry about your checked baggage until Spencer Street and certainly Sir, the dining car is open for breakfast. In next to no time off they glide, down the endless platform to Melbourne, coffee cups in hand, a brand new Clyde diesel on the front, three extra cars on the back, and a crew trying gamely to match 1500hp against the schedule of a 2000hp steam engine in spite of the speed recorder.

The Second Division on the Victorian side is air-conditioned, too — some of it. But not the Second Class cars reserved for the troops. These are old cherry-red wooden twelve wheelers. The Nashos' compartment has a definitely unpolished hole-bottomed brass container set into the lino floor directly under the window. Mick, who's opened another bottle of beer, asks whether it's — and he's told, no, Mick it isn't for that. It's called a cuspidor. It's for Second Class gentlemen to spit into and drop their cigar ends in, and to let the noise up from the track into the train. Here is something new on the railways; clearly, the VR is different from NSW . . .

But oh, what a different encounter with the Twelve Wheelers when, heartily sick of sitting up in the Second Class all night and kicking cuspidors the next morning, one nasho decided to supplement his second-class travel warrant at Spencer Street with folding money, for a First Class sleeper ticket.

Then, as today, the VR needed the money, and for just 7/6d one could have a seat in the Parlor Car. There were about 20 or so of these — comfortable solid leather chairs like the Small's Club Chocolate wrapper, and the same kind of can't-knock-me-down chromium ashtray stands. Dark timbers, and dark brown carpets like a 1935 Tooth's pub. Or, no doubt, a 1935 whorehouse of the better class.

It didn't matter if you were 18 and in recruit's uniform. Once you paid to ride the Parlor Car you got the flowers, use of the bedroom-sized Gent's and very special service from the very superior grey-haired Conductor (personally chosen no doubt by Sir ROT Harold Clapp with all the Spirit's other 1937 equipment). And when the northbound Spirit slipped discreetly into Albury, there were no seething Second Class masses. They had been packed off ahead, sitting up in Number Four.

There was just a very quiet, well-lit platform, a rake of clean shiny-sided Tuscan red and russet Twelve Wheelers, and (unique to the Limited) the NSW's economical 1938 answer to VR's 1937 Parlor Car, that oh-so-distinguished KAM car, with its reading lounge and carpets and loose chromium chairs, everything one needed in fact except an attendant and a nightcap.

After June or so, there was a sleeper berth with fresh linen, a carpet-stepped wooden ladder, a reading light whose glimmer shone on varnished cherry-red panelwork. And, always just audible through the ventilator above the beat of the wheels, the manifold exhaust of the big 38 class Pacific punching the Limited up the 1 in 75 grades of the Bethungra spiral. Over the mountains, down to the sea; Platform 1 at Sydney station, on time. Thank you, Driver. Dad waiting at the barrier. Home.

The MALs were the bastard, diesel-era, children of aged Twelve Wheelers and a parsimonious government. The MAL was the 1955 rebuild of 10 chair coaches into a longitudinal berth sleeper with twinette rooms for 18, each with an attached private toilet (but alas! no private shower). The extra johns pushed the weight up to 48t.

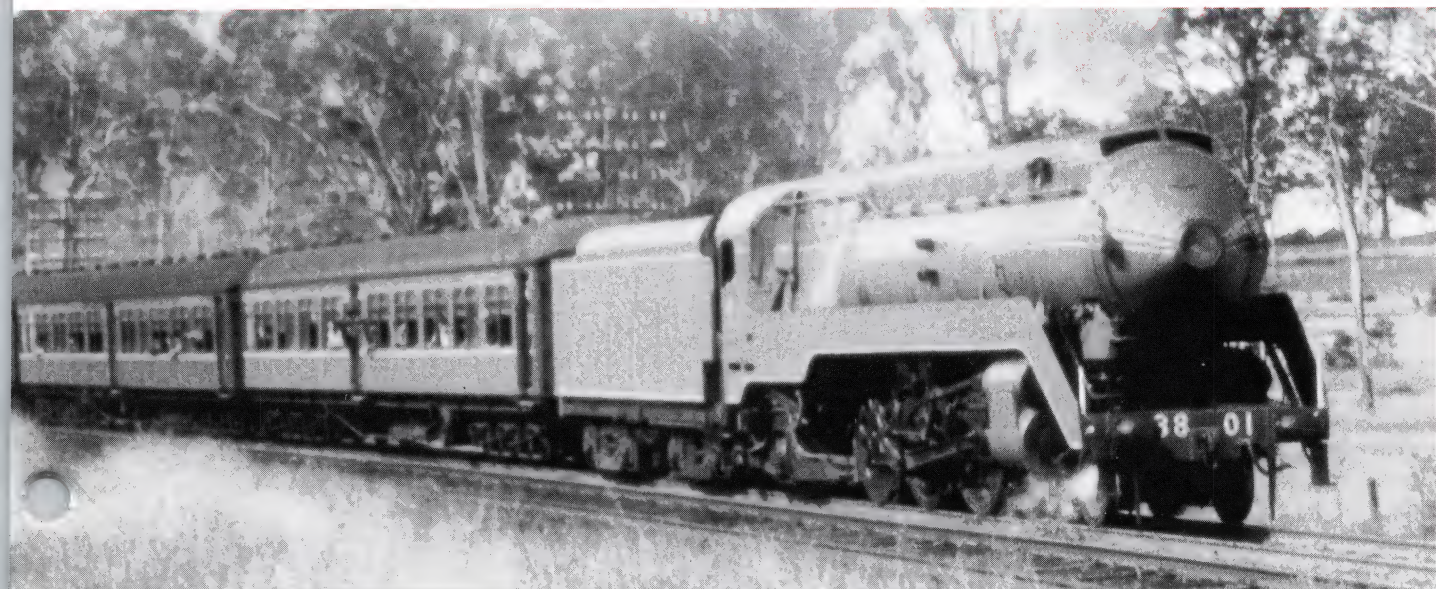
The MAL conversion job was bid privately at \$30 000 a car (it would cost 10 times that to do it today), but in the event the job was done by the



NSW shops. For the first time in a New South Wales sleeper, the exquisite timber interior finishes had yielded to glued-on PVC cloth, universally (but quite incorrectly) referred to at the time as rexine. The cloth wall looked fine when new, but rendered a MAL incredibly tatty-looking when it tore in the interior's old age.

The MALs were never air-conditioned. They should have been. Who on the dreaded MAL-equipped North Coast Mail, that awful pre-Gold Coast Motorail train to Murwillumbah, will forget the ritual 3am walk-past ceremony? We are at a crossing loop somewhere on the sticky North Coast. The window is cracked open behind its shutter, so that we do not suffocate. The two 44 class Alcos are burbling away somewhere up ahead, and the other train has passed. Crunch, crunch, crunch come the heavy feet, measured treads in the gravel. There are bangs and bumps down the train. G'day Fred. G'day Bill. Been any rain, Fred? Yeah Bill, it rained yes'dy. Didja git any down your way, Fred? Yeah Bill, just a bit. Bang, groing, from the vans aft. This cannot be the Royal Mails — surely a steel band is unloading a brace of empty 1000-gallon tanks? Hark. G-drong, g-drong — now he's rolling it down the platform towards Fred and Bill. Now he has banged it into the side of another coach. Now the partition is banged by somebody in the next compartment. Now there are muffled noises on the other side, and a small child whimpers. There is

you paid, you got the flowers and very special service.



Steam legend: A rake of 12-wheelers hauled by the legendary 3801 38 Class Pacific 4-6-2 steam locomotive, commissioned in 1943. Completely restored, it will haul special trains throughout Australia this year.

the sound of water running onto the ballast — filthy sod. The air brakes hiss, the rodding creaks gently, the Alco's engine changes note slightly . . . and here comes the shock-wave: ker-crash! ker-jangle! It is not a wreck or an earthquake but the protesting coaches of the North Coast Mail being dragged into rolling motion again, and as the unnecessarily bright lights slowly creep past the louvres, the shadows march up and down the rexine. Back to sleep for an hour, and another extended stop. Not the NSWGR's best train. Roll on air-conditioning, stainless steel, and double windows.

Sixty years on *SINCE 1913*

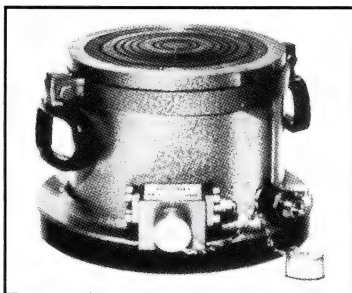
By 1973, country trains have fallen on evil days in New South Wales. Save for a very few railcars, there has been little investment for decades. True, the new Indian Pacific has been launched and the intercapital trains like the crack Aurora and Spirit to Melbourne, the Brisbane Express and the Gold Coast Motorail are running and loading well. But not so intrastate. On the proud air-conditioned Daylight you can always book a seat. You can see that patronage is way down, and the night Mails — still traditional Twelve Wheeler jobs — are on-their way out. Now there is no need for the vast fleets of old pre-electrification wooden suburban, rebuilt as short-haul day trains. Or for the equally bouncy Tourist sets, rebuilt from old dogboxes. The secondary main-line trains to the bush have gone. Now there is no

need for supplementary coaches at school holiday time; there are so few trains to supplement. The Blue Mountains have been interurban electric for nearly 20 years, the Gosford line likewise. The mutiny of The Fish's vexatious clientele when their train went interurban is history. The neat blocks of matched coaches, tailor made for each service, and once so characteristic of NSW country trains, are steadily getting shorter, more broken-up, more mixed, less tidy-looking. As timber bodies wear out, whole sets of eight-wheeled cars are withdrawn and burned. Only the big, solid Twelve Wheelers seem to keep running. Yet such has been the impact of the motor car and the winding back of secondary services that even Twelve Wheelers are becoming surplus. Mr Lucy's cars go through their final saw-and-screw rebuild jobs as a few train sets are gutted, re-seated with ex-suburban type flipover seats, painted up, gas-heated. They are called supplementary interurbans; some are even mounted on electric-train style bogies. The result is one of the most handsome varieties of all Twelve Wheelers. Handsome is as handsome does — there's no capital allocation for anything new or better. One such set forms the regular 06.09 from Mount Victoria to Sydney.

But under successive governments and Phillip Shirley's Public Transport Commission, the economies are biting deep, and it shows. When the individual 50mm matchboards

deteriorate (and on a Twelve Wheeler there are typically 800 of them exposed to the NSW sun) they are no longer replaced, but sheeted over in ply or masonite. The intricate mouldings disappear, the intricate metal and lincrusta ceilings become painted masonite too. The solid leather upholstery of the seats has long been plastic-faced cloth. The small top windows — always "crownlights" in NSW, "top lights" on Mr Lucy's Great Western — are removed and concealed by barge-boards, MAL-style. The "modernised" Twelve Wheelers seem to disapprove — they have a vaguely frowning aspect. In the suburban area, antique 1927 coaches are repainted a bright blue and white. But the poor maintenance of the equipment belies the appearance. Trains are going in traffic with equipment cut out. On a once-proud system, something is going terribly wrong with the trains. The Conductors apologise and try hard to make up for the deficient material. They do their best.

It is the same with the tracks: cut back, economise, cut corners. Pretend that money is being saved, when in truth maintenance is being put off. Try to do the same thing, only less well. The remaining Twelve Wheelers rock and lurch up and down the Main North, the South, the West in shocker trains at undiminished speed. The tracks are getting as bad as the trains. On 18 January 1977, the 06.09 from Mount Victoria ends its trip a few kilometres short of Sydney. As it is high



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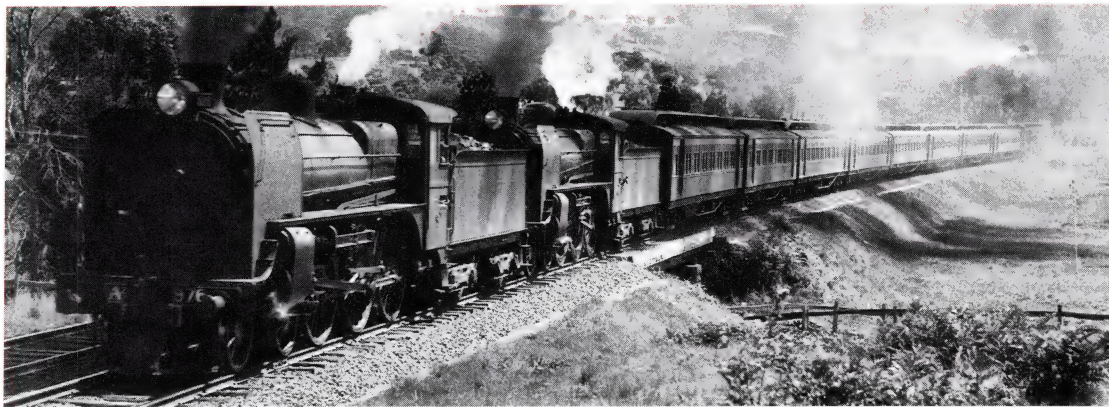
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The Albury Express is hauled by double header A2 locomotives near Kilmore East in 1937. (Photograph by John Buckland)

summer, the gas heaters are turned off — the only blessing of a terrible morning.

The Public Transport Commission has gone, thank God. We have State Rail, an organisation, and a railway that is dragging itself back from the abyss. The XPT is running, the mails are less relevant and further reduced. Increasingly often, the long rakes of condemned wooden coaches start to include the once proud and stately Twelve Wheelers.

Survivors are being repainted in State Rail's new-look candy-stripe livery. The PR boys tell us that it is dynamic, exciting and new, but the Twelve Wheelers have seen exciting new paint jobs before. Stripes may look fine on new diesels and steel cars; but when you do a touch-up, paint-over job on ladies up to 70 years old, they tend to look tarty. It was different when they were young, in 1924.

With more new stainless steel sleepers available as a fallout from the Indian Pacific programme, the MALs are starting to go. The few still running as supplementary cars are kept clean inside, but they are a poor substitute for the regular stainless equipment on the prestige trains. They have got to go. The Twelve Wheelers have all but disappeared . . .

The 75th year *when?*

Since the late 1970s, museum societies and individuals have been quietly buying Twelve Wheelers for preservation. In the ACT, the local Railway Historical Society even advertises tours by old-world sleeping car, a happy reincarnation of the Roaring Twenties.

It is 8.30 on a dark, wet spring Friday night at Canberra station. Eight coaches are drawn up, four sleepers, three day coaches and a brake van labelled Dance Car; all for 385 tonnes and just 48 passengers. For the weekend round trip to Newcastle, the fare is under \$200 including the food

and drink. The brake van will carry all the Hunter wines home to Public Service land. The train is pulled up by one of State Rail's 48 class diesels, heavy and gutsy enough to pull just about anything, but too deficient in horsepower ever to pull it very fast except downhill.

This is, we are told by the organisers, a conscious decision to ensure that we have a smooth ride. And that we do, an SRA Driver who is one of the society's members is in charge, his touch on throttle and brake feather-sensitive. Clearly, he never did the special course for the old north coast Mail. Enroute the special train is to run into Sydney Terminal for reversal and remارشalling, and will pick up the electric loco for the run north. It is to be parked in the loop at Hawkesbury River for sunrise to catch up, so that we can enjoy the view and to ensure ample time for breakfast before arriving in Newcastle at 8.30am. The arrangements are incredibly civilised. There are four Twelve Wheelers in this train, and their varying condition attests to the long, hard task that every preservation group faces in getting antique railway equipment back up to scratch. Even organising and charging several tonnes of 24V dc batteries calls for hundreds of hours of work from some volunteer electrician.

One TAM has been done up in Tuscan red and russet; the MAL is still candied; and the other two TAMs are in SRA's penultimate Indian red and primer touch-up. Inside, great work has been done to restore them. Everything works except where a lamp is missing. A new carpet has done wonders. On the way the rain crashes down — but not one roof leaks. New maltoid protects old timber. In the renovated buffet car, all is good cheer and bright lights, with free tea, coffee and other drinks generously served.

On our trip back behind an electric loco, we have several adventures. A spring breaks. We see the beautiful

Hawkesbury area under ideal conditions. We are taken down the North Shore line and over the bridge, to savour the unique experience of stepping out of a sleeping car at Wynyard station and walking to the Opera House for a dinner cruise on the Harbour.

What did we do at Newcastle? Some took it easy, some toured the vineyards, Bankcards at the ready. For the rest, another co-operating society organised a pair of old rail motors, one the famous Car No. 3 that went into traffic in November 1923 (not with its present diesel engine). The SRA crew are members of the Rail Motor Society. We are taken on a trip that ends up on a siding through a nondescript area of industrial Newcastle. The green and cream rail motors are parked in the middle of a new roundabout, clogging up the Sunday traffic, while the euphoric patrons descend to photograph them.

An old lady in a terrace house cannot believe her eyes. She lifts up her dog so that it can see us too. *Not*

On Platform 1 of a beautifully-restored Newcastle Station, four long, stately coaches await the children among us who are the fifth generation of Mr Lucy's patrons.

Happy indeed the restored Twelve Wheeler that lives on, so that Seven Little Australians can again go Three Hundred Miles in the Train.

Editor's Note:

And so to . . . 1988

The venerable twelve-wheeler takes on a new role as the Railways of Australia Bicentennial Steam Train. Hauled by the legendary 3801, twelve-wheelers will make a series of journeys to all mainland State capitals. Their interiors decorated in nostalgic "N.S.W. red," the six cars will play their part in the beginning of our third century of European settlement . . . a tribute to their own longevity.





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THE GULFLANDER

Sole survivor that opened up

Once a week, at 8.30am on Wednesdays, the Gulflander sets out from Normanton in Queensland's far north on its 152km journey to Croydon — the sole survivor of the isolated railways that opened up Australia. Normanton is 700km inland from Innisfail, 500km by road from Mt Isa, and 70km from Karumba on the Gulf of Carpentaria. Located on the Norman River, it was founded as a port for the development of the Gulf country. A rail link to the new mining centre of Cloncurry was proposed as early as 1883, and there was also a move to link Normanton with the Etheridge goldfields.

Plans for the first section of the railway from Normanton to Cloncurry were approved in 1886, but the following year, a "deviation" to the newly booming gold centre of Croydon was proposed.

The Queensland Government finally approved plans for the first 21km of a route that would enable the line to go to either Croydon or Cloncurry. Construction began in 1888, but it was not until 1889 that Croydon was chosen instead of Cloncurry as the destination. George Phillips, an engineer and champion of the Gulf country, supervised the building of the line. He designed and patented a steel sleeper, which was tested on the Fassifern branch of the Queensland Railways. The Phillips steel sleeper was an inverted U, packed with mud. When dry, the mud was intended to be part of the sleeper. Contracts for

the sleepers were let overseas and to the Toowoomba Foundry Company, which set up a works to produce them at Woolloongabba in Brisbane. Almost 100 years later, all but a few of these steel sleepers are still in place. It is to them that the low-traffic Normanton Railway owes its survival. In low-lying country near the Norman River, where salt water is a problem, hundreds have been replaced by timber sleepers over the years. From the opening of the line, steam locomotives hauled the trains. One has been retrieved from a rusty grave in Normanton and is now preserved at Croydon.

In 1922, the first rail motor was introduced to the line: a 20-24 hp Panhard Levassor. The Panhard was joined by a more powerful AEC petrol motor in 1929, but remained in serviceable condition until 1941. It is now in the Redbank Railway Museum, Brisbane.

Today's rail motor, RM 93, came from Rockhampton, where it was used by the General Manager of the Central Division of Queensland Railways as an inspection car. It hauls a stainless steel trailer, originally part of a four-car rail motor train used on the old line from Brisbane to Southport, among other routes. A flat-top wagon is sometimes hauled as a trailer for carrying freight, supplies for camps on the line, and the odd motor vehicle. RM 93 is fitted with a 6-cylinder Gardiner diesel and a four-speed manual gearbox, driving either in forward or reverse. It is a



The Gulflander crosses the Norman river just beyond Glenore.

strictly utilitarian vehicle, and its power train can handle the high grass and debris that sometimes encroach on the Normanton to Croydon line. The name Gulflander is only 10 or 12 years old. It is in the tradition of Queensland's premier long-distance "lander" trains such as the Queenslander, Sunlander, and Midlander. Initially applied to rolling stock with some local talent and colour, the name is now accepted and

GULFLANDER

of the railways isolated Australia



appears in large letters on the rail motor.

Today's Jack-of-all-trades officer-in-charge is Colin Shephard. He functions as rail motor driver and mechanic, station master at Normanton (and Croydon when there), maintenance supervisor, accountant, and public relations officer. A porter and a fettling gang help.

Colin moved to Normanton from Cairns in 1986 and loves the life in the

outback. He had been a leave relief in the post, and when his children grew up applied for the job and moved with his wife to Normanton.

Community Service

Queensland Railways maintains the line as a service to the community (it comes nowhere near covering its operating costs). Colin helps ease the burden by doing his best to ensure that its facilities are publicised. Special picnics are run from Normanton part way along the line, and the train can be chartered to savour the experience of riding on an all-steel railway — steel rails, steel sleepers.

The four-hour schedule for the journey is fairly leisurely, and allows Colin to use his local knowledge to point out features of interest on the way.

Normanton Station is a vast structure with a roof over the running lines. It is not the original starting point of the railway. This was at the wharf on the Norman River about 3km away, a section of track that rusted away through salt corrosion after the river ceased to be the source of Normanton's supplies.

Colin Shephard drives the Gulflander eastwards from the station, across the main road that links Normanton with Cloncurry, and heads out past the edge of the town's airstrip.

The first stop is Glenore, 22km away. Here bus parties of tourists are picked up on Thursdays on the return journey and given a short ride into Normanton.

Just beyond Glenore, the line crosses the Norman River on a solid but low steel and concrete bridge. At this point, 140km from its mouth, the river is still tidal.

At Blackbull, the 92km point, the Gulflander pauses for 20 minutes or so. The young daughters of the manager of a nearby station come down to the train to offer the travellers delicious homemade cake and lemon cordial at modest prices — youthful private enterprise in remote Australia. Until 1950, Blackbull had a refreshment room.

The journey continues through scrub country to Golden Gate, 148km away, once one of the centres of the Croydon goldfield. It had a "suburban" service into Croydon for Saturday night entertainment in the old days when the goldfield was booming. Now all that remain are mullock heaps and pieces of mining machinery. If time permits, the Gulflander pauses for a brief inspection of some of the relics, with glimpses of bower birds nests and wild banana trees. From Golden Gate, a siding ran some distance into the bush for collecting wood fuel for the Croydon Mines.

Croydon, 152km from Normanton, is reached at 12.30pm. Here, the station building survives but without its roof. Gold was discovered at Croydon in 1886 and by 1887 3,500 men had rushed to the field. As many as 31 mining companies were set up, but early collapses and the depression of the 1890s brought a gloom that was



Colin Shephard, officer-in-charge of the Gulflander. He is driver, mechanic, station master at Normanton and Croydon, maintenance supervisor, accountant, and public relations officer for the line.

only slightly relieved by the coming of the railway. There was a temporary revival around 1900 with the opening of rich reefs on the Golden Gate — Croydon in 1900 had three newspapers and there were five schools in the district — but from about 1905 the field declined. By 1920, it had collapsed.

Gold revival

Like so many goldmining towns in Australia, Croydon today is a shadow of its former self. But there are signs of a revival. New gold development is in progress on the town's outskirts. Construction crews are already at work, and miners will settle in the area. The focal point of the town is the Club Hotel, a two-storey building built mainly of corrugated iron. Many of the Gulflander's tourist passengers choose to leave their cars in Normanton and make the return trip by train, staying overnight at the Club. To cater for them, the hotel has splashed out on an upstairs toilet and shower, and some rooms have been air-conditioned. The welcome is warm and genuinely friendly and the meals are hearty. And if the wine list is short, the prices are a snip.

The Shire of Croydon — nearly 3,000,000ha in area — is administered from the town. The old Court House and the shire offices have been preserved, together with some lamp standards that date from the mining era.

At 8.30 on Thursdays, Colin sets off on the return journey, carrying some returning tourists, the occasional local family making a trip, and, when the weather is bad, freight picked up from Croydon for onwards delivery to Normanton. The road is sealed only in part, and rail can come to the rescue in times of heavy rain. But the line is also at risk of flooding.

Today the Gulflander is attracting rail enthusiasts and adventurous tourists from all over the world. Many travel vast distances to experience a journey that is the last of its kind.



(Network gratefully acknowledges the assistance of Mr J.W. Knowles, a noted Queensland historian, in the preparation of this article).



A view of the Gulflander's steel sleepers, designed and patented by George Phillips, an engineer who supervised the building of the line.





Left: The Gulflander leaves Normanton Station, a vast tin structure with a roof over the running lines. The original starting point of the line was at the wharf on the Norman River about 3km away, a section of the line long rusted away.



Left centre: Scene in the scrub country near Golden Gate, once one of the centres of the Croydon goldfield. It had a "suburban" service into Croydon for Saturday night revelry.

Below: Rural entrepreneurs. At Blackbull, the daughters of the manager of a nearby station sell delicious homemade cake and lemon cordial to passengers on the Gulflander.





Michael Schrader (left), Executive Director of Railways of Australia, and Bevan Scott (right), Assistant Commissioner, Queensland Railways, join winners at the ROA Workskills competition in Melbourne. They are (from left) Glen Smyth, Adrian Burling, Lea Welch and Adrian Schwarz.

Workskills winners

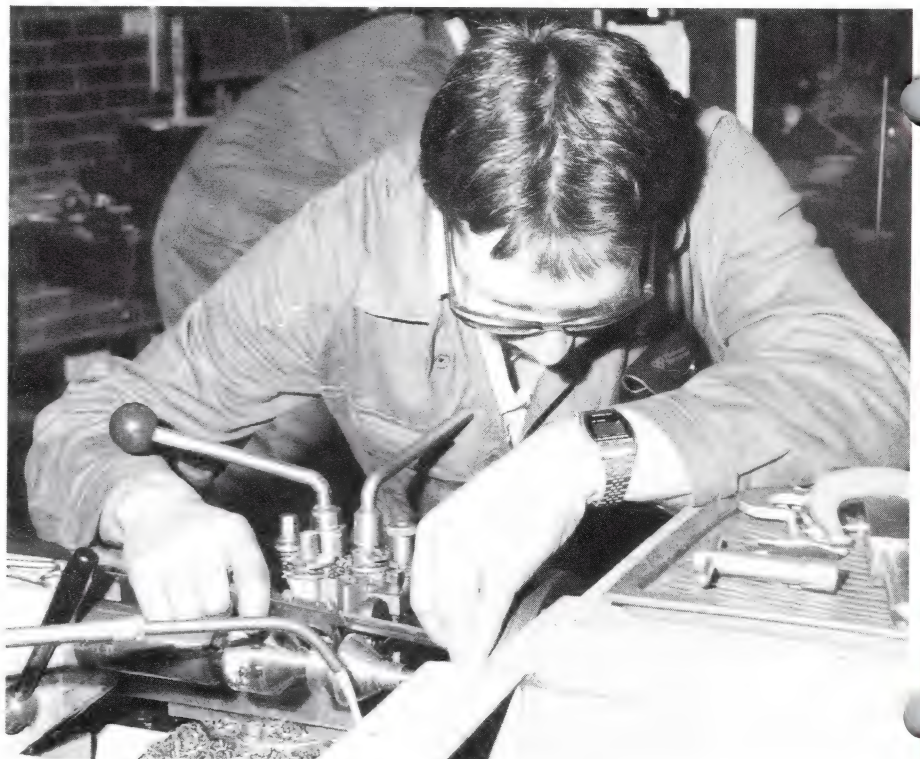
The first Railways of Australia Apprentice Workskills Competition in Melbourne saw 35 apprentices from all railway systems take part in a three-day challenge at the Newport College of TAFE. The host was the Victorian system.

At a formal dinner on Wednesday, 9 September, Mr Bevan Scott, Assistant Commissioner (Engineering & Technical Development) of Queensland Railways, presented gold medals to: Adrian Schwarz (Turning), V/Line; Lea Welch (Construction Steel), Westrail; Glen Smyth (Fitting), Australian National; Adrian Burling (Electrical Wiring), State Rail. Speaking on behalf of the Chairman of Railways of Australia, Mr Keith Fitzmaurice, Managing Director of the State Transport Authority of Victoria (V/Line), said the workskills competitions were important to the railway industry. The ROA Workskills competition provided an ideal chance for apprentices to widen their personal contact with their colleagues from all systems in a healthy and competitive environment.

Mr Fitzmaurice said moves were under way to have the ROA competition recognised as a regional competition of the National Work Skills of Australia competition, which would

introduce railway apprentices to their contemporaries throughout Australia. The high standards set by the railway apprentices in the first ROA Workskills competition was a credit to apprentice training in all railway systems.

Gold, silver and bronze medals designed by a State Rail apprentice, Shane Hawkins, were awarded in each of the four sections of the competition.



Head down and concentrate: a study in application at the ROA Workskills contest in Melbourne.



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POWER PARADE & LINE OF PROGRESS IDEAL CHRISTMAS PRESENTS:

POWER PARADE

Power Parade shows the development of steam and diesel-electric locomotives of the Victorian Railways and V/Line. Power Parade has some rare historical footage including Polly, the first locomotive built at Newport Workshops, in action as a steam crane.

Also included is action of a narrow gauge Garratt in the Otway Ranges, S Class steam locomotives, both in their original and streamlined forms, R752 hauling a wheat train and footage of X A2, D4, C, Old R and E Class locomotives.

As an added bonus, there is a photograph of every class of locomotive to run in Victoria included.

But Power Parade is not just about nostalgia. Power Parade has present day action including the powerful sight of two C Class diesel-electric locomotives hauling more than 1,000 tonnes of freight up Ingliston Bank.

V/Line's newest locomotives, the N and G Classes, are featured in action as is the final run of the L Class mainline electric locomotives.

Power Parade is hosted by Gerald Dee, who spent many years on the footplate and is currently V/Line's Fuel Conservation Officer, and is narrated by well-known railway historian Bruce McLean.

LINE OF PROGRESS

A fascinating compilation of footage from the past and the present which highlights two historic events for passenger rolling stock in Victoria. Two separate and contrasting films - made nearly half a century apart - that take you from the days of Orient Express-style opulence and liveried conductors, through to the contemporary luxury of air-conditioned Country passenger trains.

THE SPIRIT OF PROGRESS - AUSTRALIA'S WONDER TRAIN. This marvellous journey into the days of steam was created in 1937 to celebrate the construction of the original Spirit of Progress. The film has been restored from documentary material in the railway archives. Picture and sound enhancement have made it possible to present this film for the first time to a modern audience.

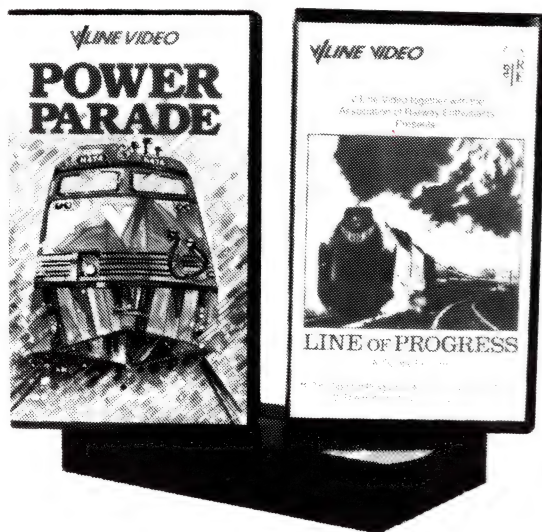
The Spirit of Progress - Australia's Wonder Train is a detailed account of the construction, unveiling and inaugural trip of a train that, in its day, was a hallmark of speed, quality and luxury.

THE RETURN OF THE COUNTRY TRAINER. The second film in this package is a perfect counterpoint to the Spirit of Progress - Australia's Wonder Train. The stage is set in the early 1980's - almost fifty years later. The film focuses on the massive rolling stock upgrading task that was begun in 1982/83.

A new generation of artisans and designers undertake construction. An impressive contrast to the crafts of the 1930's carriagebuilder. The Return of the Country Trainer gives a colourful insight into modern railway engineering techniques and the technical advances of the past decades.

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Savings from high-tech locomotives

Third-generation diesel-electric locomotives will save the world's railways billions of dollars in running costs and maintenance, according to Anthony Finnegan of A. Goninan and Co.

Mr Finnegan, in charge of Goninan's locomotive engineering products, told the conference on railway engineering in Perth that locomotives were available to enhance railway performance now and into the 1990s.

Mr Finnegan predicted that the economic impact of the conversion from second-generation to third-generation locomotives would be roughly the same as the conversion from first-generation to second-generation.

Improved performance would come from more powerful components, such as the traction motor and traction alternator, and from an "intelligent" on-board computer that ensured optimum performance under all running conditions.



Tony Boland



Bill Goodwin

State Rail appointments

State Rail Chief Executive Pat Johnson has confirmed the appointment of Mr Tony Boland as Director of Operations Division.

Mr Boland, 49, has been acting in the position since May 1987. A career railway engineer who followed his father into the railway service, Mr Boland joined the Redfern laboratories in 1955 as a 16-year-old cadet.

Three of his six children are State Rail employees — Rosemarie in Mechanical Branch, Martin in Operations and Ian in Electrical.

After 21 years as an engineer in the laboratories, Mr Boland served in a variety of positions, including Brake Engineer, Manager Rollingstock, assistant to the Chief Mechanical Engineer, Manager Contracts, Assistant Chief Mechanical Engineer, Chief Mechanical Engineer and Executive Manager for the East Hills-Glenfield Project.

In another appointment, State Rail has named a 41-year-old civil engineer and Churchill Fellow as Director of the Engineering Division.

Bill Goodwin, who joined State Rail as a trainee engineer 23 years ago, has just completed a three-month study tour in Japan, Sweden, West Germany and Britain on a Churchill Scholarship.

Mr Goodwin has held a variety of engineering positions with State Rail. After graduating from the University of NSW, he was appointed a District Engineer at Grafton, and then at Hornsby.

He later served as a Division Engineer at Tamworth and Wagga, before returning to Sydney, where he became Metropolitan Division Engineer. He has also served as a Planning and Design

Manager and most recently was General Manager of Railway Workshops.

Four years ago, Mr Goodwin added a Master of Commerce degree from the University of NSW to his engineering qualifications. During his recent overseas trip he studied the management techniques of four rail systems, other successful large organisations and management developments in several leading research institutes.

First heavy haul workshop in Beijing

The first international heavy haul railway workshop will be held in the Friendship Hotel, Beijing, from 31 October to 4 November, 1988 on the theme "Braking systems for heavy haul operations." The host is the China Railway Society for the International Heavy Haul Association Inc.

Technical sessions over the three days will involve presentation of papers, panel discussions and workshops on problems with train braking systems; train handling, including remote control; and train braking and control developments, including robotics.

Details from: Mr John G. German, Workshop 88, 19 Holloway Drive, Lake Saint Louis, MO 63367-1357 USA Telephone 314/625-8331.

Award for railway engineering

Railways of Australia and the National Committee on Railway Engineering of the Institution of Engineers, Australia, invite nominations for the fourth annual railway engineering award.

The 1987 award, set up to encourage younger railway engineers, has a prize of \$500. Organisations, groups of engineers or individuals may nominate projects, technical papers, designs or innovations presented or implemented in 1987.

Submissions should be sent by 31 March 1988 to the Chairman, National Committee on Railway Engineering, the Institution of Engineers, Australia, 11 National Circuit, Barton, ACT 2600. Write for details.

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Corporation to manufacture the GM diesel electric locomotive outside the domestic USA.

Since that time, Clyde has supplied over 1000 diesel electric locomotives to Australian Railways.

Walkers Limited has been involved in the design and construction of railway rolling stock since 1890. More recently they have supplied large numbers of diesel hydraulic locomotives and stainless steel EMU vehicles to Queensland Railways. A total of 280 EMU vehicles have been ordered so far, including the new inter-urban trains to run between Brisbane and Rockhampton by 1989.

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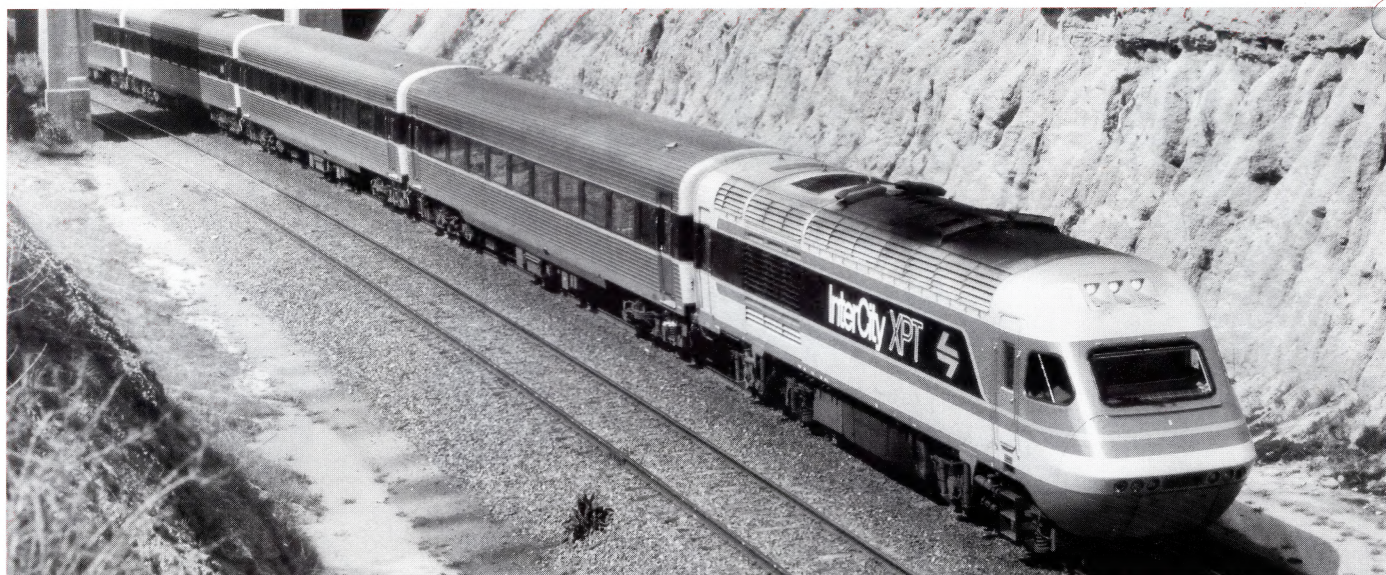
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Is this the southern speed record?

Dear Network,

Please inform Colin Taylor that the southern hemisphere's speed record is 247km/h achieved about 10 years ago by a test train (on 1 006.7 mm gauge) in the Republic of South Africa by South African Railways.

I have a newspaper report of an earlier attempt of 240km/h in December 1977 by SAR. SAR Metroblitz train has achieved the highest passenger train end-to-end average (between Johannesburg and Bloemfontein) speed of 112km/h.

Australian railway systems are generally ten years behind SAR in innovations, for example, self-steering bogies, concrete sleepers,

computerised marshalling yards, and ultra-heavy-duty freight trains.

B. Hardiman
PENRITH
NEW SOUTH WALES

No match for the Brisbane

Colin Taylor replies:

The Network article does not deal with speed records as such, except to mention that the XPT broke the **Australian** speed record in 1983. As far as I know, South Africa holds the world record for substandard gauge rail speed, at over 200km/h set on 11/11/1976 by a test vehicle hauled by a specially geared electric locomotive according to the **Guinness Book of Rail Facts and Feats**, and this may well

also be the record for the southern hemisphere.

The tables published in Network relate only to scheduled passenger services, and as far as I can discover, Australia is the first country in the southern hemisphere to have a scheduled 120km/h plus between stops. SAR's Metroblitz ran between Johannesburg and Pretoria, 69km non-stop, in 44 minutes, a mean of 94.1km/h, well short of the threshold for the "Speed League" tables. It was withdrawn in 1985, after just over a year of service. The 112km/h run between Johannesburg and Bloemfontein referred to by your correspondent was test run to establish the feasibility of a four-hour service between these cities. The present best for this 408km run is 6 hours 45 minutes by the northbound Amatola and Algoa trains, at an unimpressive 60.4km/h, which, whatever other achievements SAR may boast, is not even a match for the Brisbane Limited.



Railways need more advocates

Dear Network,

Never before in Australian railway history has it been so vital for the railway story to be told. As a person with full appreciation of railways' potential, I welcome such publications as Network.

So far this decade some 23000 people have died on Australian roads. In 1982, there were 48000 semi-trailers registered in Australia. By 1990, it is expected this will increase to 80000.

Giant B double trucks are being introduced to overused roads and highways. These things are 32 metres (105 feet) long, and carry up to 56 tonnes. Truck speeds have been increased. Even without them, 80 per cent of Australian freight is road-hauled. On top of that an energy crisis is just ahead.

Yet the NSW State Rail Authority is so anxious to help the flourishing trucking industry it plans to close 21 branch

wheat lines and hand over to road transport, the fuel user.

Railways need rail advocates and spokesmen. Roads are too well spoken for, and too well fed.

George Shale
MARYBOROUGH
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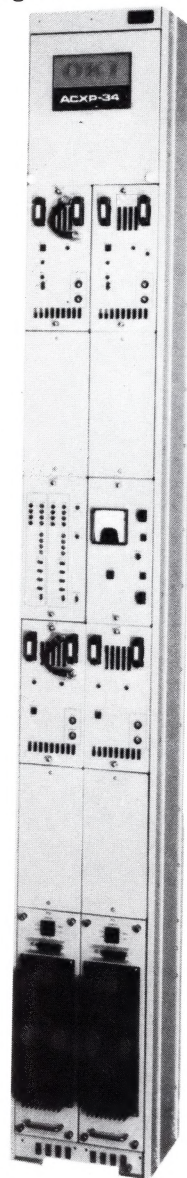
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